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# COLORADO

COMPLIMENTS OF

F. J. V. SKIFF,

Superintendent.

THE

# NATURAL RESOURCES

AND

# Industrial Development

AND

# CONDITION

OF

# COLORADO

PUBLISHED BY AUTHORITY OF THE STATE

BY

THE BUREAU OF IMMIGRATION AND STATISTICS.

DENVER, COLORADO,

1889.

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# INTRODUCTORY.

THE Bureau of Immigration and Statistics of the State of Colorado was created by an act of the Seventh General Assembly; the act was approved by the Governor and became a law on the twentieth day of April, 1889. The purpose of such enactment was the encouragement of immigration into the State. Under its provisions it became the duty of the Superintendent of the Bureau, to give such assistance as is practicable to immigrants and to spread abroad full and accurate information with reference to the industries and resources of the State, its wealth and its attractions, its prosperity and its possibilities, and the opportunities it offers to the people of other lands, for business, for homes and fortunes within its borders. For the faithful performance of the manifold duties of the department, this little book is placed in the hands of the reader, to whom its mission is to present the great sources of wealth in Colorado and a statement of simple, impartial facts concerning each county in the State and its separate industrial interests. To the inquirer and the intending immigrant a perusal of this pamphlet will be profitable.

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1889.

# COLORADO.

THIRTEEN years ago Colorado was admitted into the Union. Before the commencement of the present century there is no written record of the civilized habitation of the country now known as Colorado, except in the southern portion, where a few Mexicans and Spaniards had made a settlement, and here their establishments still remain. The country now embraced by Colorado was first explored by Americans in 1806, when the expedition of Lieutenant Zebulon Pike marched across the plains to Pike's Peak, that sublime statue of nature which stands before the world in romance, poem and picture—a beacon to western civilization. In 1820 the expedition of Colonel S. H. Long came across the plains, and in 1842-4 occurred the celebrated exploration of General John C. Fremont across the Rocky Mountains. These three courageous explorers, with their armored retinue of brave men, like the Spaniards who came and went away two centuries before them, bore testimony of the great mineral wealth of the country but each and all reported no discovery of precious metals. As if by the eternal fitness of things, this discovery was reserved for the progressive people of to-day.

The first actual settlement, from which has grown the present population, was made in 1858, when a party of explorers, under the leadership of W. G. Russell, a Georgian, found gold on Dry creek, seven miles south of the site of Denver, and made their first settlement at the latter place. The news was spread abroad of this discovery, and others which quickly followed, inspired in the people of the Eastern States that spirit of western immigration which gave world-wide fame to the "Pike's Peak Country" in 1858 and '59 and started in motion the wheels of industry which have since that time developed fabulous wealth in the State.

Colorado was organized as a Territory by act of Congress, Februry 28, 1861, and admitted as a State in 1876, the Centennial year of the nation. The State takes its name from its largest stream, the Colorado river, a name bestowed by Spaniards and derived from the generally red color of its waters, the result of the disintegration of the reddish, clayey soils which the river drains in its devious course through the hills and cañons of the State toward the sea.

Colorado is situated between latitude 37° and 41° north, and longitude 102° and 109° west. It is bounded on the east by Kansas and Nebraska, on the west by Utah, on the north by Wyoming Territory, and on the south by Indian Territory and New Mexico. The State has an area of 104,500 square miles. Its average length, east and west, is 380 miles; its breadth north and south, 280 miles, and it contains 55 counties. Many years before the Territory became a State, a long time before the plow had made a furrow in

the soil of her virgin breast, and while still the savage Indian roamed at will, dominating mountain and plain, it was the prophecy of wise men of the time that Colorado would become the center of western civilization. How surely this prophecy has been fulfilled! In less time than the average life of man nearly two millions of acres have been furrowed by the plow; the savage and his legendary and his trappings have gone; the furnace and workshop have taken the place of his smoking wigwam, and the implements of industry have supplanted his crude weapons of war.

A glance at the map of the Union shows the advantage of Colorado's location with reference to the commerce of the western half of the nation. Occupying a central position among the States and Territories, forming a large proportion of their agricultural area, and exceeding each of them in the natural sources of wealth, it is the land to which all the industrial regions of the West will come to pay tribute and exchange the products of their genius and their labor. Geographically, it is the great central ground of traffic and travel between the two oceans and between British America and the Gulf of Mexico—a broad and promising field for the industries, the arts and the sciences. Each passing decade leaves a record of phenomenal development; her brilliant achievements during the past ten years have spread her fame throughout the American Continent and to-day command the admiration of the civilized world. What has been accomplished within thirty years which have elapsed since the first settlement in Colorado as a barren Territory, shows a rate of progress unrivaled in the history of civilization. What has been done since her admission as a State, in 1876, presents a marvelous history of precocious growth. The event of her admission to Statehood antedates the period of her substantial progress, and the subsequent steps of her advancement is a surprising study.

With the advent of the gold seekers of 1859, Colorado became famous as a mining country, with fabulous wealth of gold and silver. Beyond this, little was known of its possibilities of natural resources till the first ten years were past and the year 1870 was ushered in, bringing with it the first railroad and the first assurance to the people of a permanent industrial establishment in Colorado. The year 1880 brought the great impetus to mining which has placed Colorado at the head of all other States in that industry. It found new railroad lines in operation and other great railway projects pointing toward the State. Since that period, new towns and cities have sprung up in great numbers in all sections of the State; sixteen main lines of railway, with their numerous branches, now thread the mountains and plains; agriculture has made marvelous progress and become a leading industry; the live stock industry has grown to great proportions and immense profit, and manufacturing has become a substantial and growing source of wealth. The past ten years has been a period when the best methods of enterprise have been adopted and the strongest efforts put forward, resulting to-day in the multiplication of industries and the development of all the natural resources of the State.

Equal in importance to all the rest, its numerous advantages have attracted to the State from all parts of America, and from all civilized

nations of the world, a class of people who may be characterized in general as industrious, enterprising and intelligent, comprising all the genius and good qualities essential to the development of the country.

When Colorado became a State its population was 65,000; in 1885 it was 223,900. In 1889 the population is estimated at over 400,000. In view of a future which is confidently anticipated by every well informed person in Colorado, whether he be resident or visitor, it is the desire, and it also becomes the duty, of the Bureau of Immigration and Statistics to show the result of present industrial operations as a basis of calculation for the possibilities of that future. Nothing can serve this purpose better than a brief statement of simple facts, and primarily in this connection it is asserted without hesitation that, with a present population of less than half a million, there is room and opportunity for many millions of people.

The erroneous impression which has prevailed abroad that Colorado is exclusively a mining and grazing country, was not without some good reason a few years ago. Until the beginning of the present decade, the sparse population was mainly devoted to these occupations; but even within less than ten years past the birth of new industries has been so numerous, and their growth so phenomenal, that the people can not keep pace with their strides of progress. Mining continues to be the leading industry, because its product is of more value than that of any single source of wealth in the State. In this respect mining is not only the leading industry of the State, but Colorado is the leading gold and silver producer in the United States. Taken singly, it is a source of immense wealth, but its profits are small when compared with those of the combined industries of the State.

After mining, agriculture takes precedence of the live stock interest, and is fast forging ahead as a rival of mining for first position among the profitable industries of the State. The results of farming in Colorado have proved successful beyond the most extravagant expectation. The soil is everywhere rich, and wherever accessible to irrigation, or within the rain districts, highly productive of all the cereals, grasses, fruits and vegetables. One of the strong indications of Colorado's superior advantages as an agricultural country is the immense volume of business transacted by the several Government Land Offices of the State. The sales have been enormous during the past three years. The aggregate entries for 1888 were 31,800, embracing 2,630,032 acres, the greater part being pre-emptions, homestead and timber culture entries in sections of the State where immediate farming operations are practicable. It is estimated by the most competent engineers and surveyors that the total arable land in Colorado, accessible to water, is 54,000 square miles, or 34,560,000 acres. Of this immease area the number of acres under cultivation is not less than 2,000,000. Thus may be seen what a vast field of opportunity there is for the immigrant to Colorado seeking a place for settlement and a home.

The animal industry of Colorado is one of its permanent sources of increasing wealth, and it is an interest of unlimited possibilities. In former years, and until quite a recent period, the cattle men and their herds held undisputed domain over the plains. But now the attention of growers is

divided between cattle, sheep, hogs and horses. Greater care is taken and new methods adopted in their culture, and among the changes that have taken place are finer breeds and a more profitable industry.

But apart from these three great industries, which are esteemed as the main sources of her wealth, Colorado possesses unknown riches in other resources which are awaiting development.

The coal strata underlying Colorado is estimated at 36,000 square miles. That is to say, if all the veins of profitable output were placed in a solid body, their combined area would be represented by the above figure. These unknown legion of veins represent all the varieties of hard and soft coals, and, as if in conformity with the Divine plan of populating the earth, wherein all the requirements of man are anticipated by the Creative Wisdom, the coal bearing areas are equally distributed throughout the State, the more extensive and most convenient where most needed. There are a few exceptions to this order of things, but where these exceptions occur, the location of the coal is relative to other sections of the State rich in products of a different nature, between which sections there is a mutual dependence for supplies.

Petroleum has been discovered in many parts of the State, and there is one extensively developed field which supplies all of Colorado and a large part of New Mexico, Arizona, Utah and Kansas with refined oil and lubricants.

The iron deposits of the State are immeasurable. The native ore is used exclusively by the largest iron manufactory in the State. The products mainly consist of rails, iron and steel, castings and merchant iron of all varieties and of the finest quality. In quantity of iron, Colorado excels any State in the Union.

Copper and lead exist in immense quantities, principally intermingled with the precious metals, and in this way these products are mined. The volume thus produced is sufficient to justify the establishment of extensive copper and lead works and this is just now becoming one of the subsidiary adjuncts to the mining industry of the State.

Colorado is the center of all the wool growing West. The number of sheep accredited to the State is 3,000,000. It is claimed that it can easily maintain 25,000,000 head. The wool product of 1888 was 9,000,000 pounds. With the home product and a reasonable share of that of the Rocky Mountain region, Colorado could become one of the greatest wool manufacturing centers in the world.

There is enough building stone in Colorado to build all the houses in the United States for a century—may be for an age. To compute the quantity is beyond the possibility of man. As to quality, it is the finest in the nation, and it is found in all varieties of kinds and colors. As an illustration of these measureless masses, in one quarry alone there is a single, compact body containing 50,000,000 unbroken square feet of delicate pink sand-stone, which is the choice building material of the State. The owner

of the quarry says that neither he nor his children can live long enough to remove this mass. What there is beneath and around and about it must remain to be usd by the children of a distant age. And yet this stone is worth sixty cents per square foot at any railway station in Colorado. There are scores of such quarries in the State.

Colorado has all the natural resources, water power and capabilities for extensive manufacturing, in iron, lead, copper, wood, wool, glass, leather, clay and many other things to be enumerated among the dependent industries. The mountains of Colorado comprise a great forest, and the timbers are useful in building.

Colorado is abundantly supplied with natural parks, water courses and mineral springs of the finest medicinal qualities, and among these places it has some of the most charming health resorts in the world. One of the chief glories of the State is its artesian wells, which are obtained in the lower levels of the mountain region, and for a distance of fifty miles or more out upon the plains. The water in places is chemically pure. In many instances it is strongly impregnated with mineral.

With its altitude and dry atmosphere, its delightful climate, its grandeur of scenery, its beautiful parks and charming health resorts, Colorado is the refuge of the invalid and the most fascinating retreat of the pleasure seeker and the tourist.

As a field of industry and enterprise, its boundless resources of wealth and its wonderful opportunities for capital and labor offer the most flattering inducements to the immigrant whose progressive spirit has fixed the eye of faith upon the star of empire, as westward it takes its way.

## THE MINING INDUSTRY.

THE record of mining in Colorado has been that of a steady increase of production from the first discoveries in 1859 to the present day. The total production of gold and silver from 1859 to 1870 amounted in value to $27,543,801; in 1870, the production was $2,850,000; in 1880, the value of the precious metals mined was $21,821,500, an increase in the annual production of $19,000,000, as compared with 1870. In the succeeding years, with but one exception, that of 1885, when the product was $17,990,351, the average varied but slightly from the figures of 1880 until the past year—1888—when the gold and silver mined in Colorado reached the enormous value of $28,031,047.

The value of lead produced was $7,006,691, and of copper $203,255, making of gold, silver, copper and lead a total production of $35,240,994. Gold and silver are reckoned by these figures at coinage rate and the lead and copper at average market value.

The value of Colorado's ore production from 1859 to 1888, inclusive, was $283,637,546. The total value of the lead produced was $38,121,552; the value of copper was $5,143,847.

This brief summary of the results from mining operations in Colorado, presented as they are at the outstart of a cursory review of that industry, is designed to serve a special and important purpose. The history of mining in the United States, and for that matter, in all the world has been so precarious, and the fortunes of those engaged in the industry so capricious, that the universal skepticism of man and the timidity of capital regarding it are not surprising. Among the most successful mining men in Colorado are to be found the most careful ones, and their sense of extreme caution may be assimilated to the skepticism of those whose homes and business pursuits are remote from the mining regions.

Similar in many respects to all progressive mining countries, where men have made and lost enormous fortunes in a day, Colorado has enjoyed and suffered the painful consequences of a speculative period. It is everywhere notorious that this period was the years from 1879 to 1882, embracing the time of discovery and first development of the great carbonate beds at Leadville. Within this period of wild excitement all classes and description of men, coming from every State in the Union, coming from all parts of the world, crowded into the mining camp and staked their fortunes, large and small, against the game of chance. They comprized that class of men who, under any ordinary circumstances, if they were possessed of wealth, "dare to put it to the touch and win or lose it all." And thus for three years this game of chance went on, and as the wheel of fortune turned, each revolution was but a repetition of the old, old story, "Some went up and some went down," a few became rich and many became poor. But it was not the people actually engaged in the industry at Leadville who were alone affected by the great sensational developments. The victims, or the favorities to fortune, were to be found in Wall Street, in all parts of America and in Europe.

But whatever the demerits of this epoch in the mining history of Colorado might have been, it should not be forgotten that the gold and silver product of the State for 1879, was $13,989,233, against $9,282,191 in 1878. It was the beginning of the real substantial development of Colorado's mines; and now, since the day of sensational booms has passed, there can be no comparison between the mining business of the present and that of ten years ago, just prior to the Leadville discovery. That was the era of the new beginning, while the signs of a sure progress and a permanent prosperity mark the operations of to-day.

The mining reminiscences of ten years ago have scarcely a connection with the active operations of to-day. The story of the present is accompanied with a golden prophecy for the future, and brings with it its advanced

theories, its broader experiences, its increase of knowledge, its sturdier manhood and its more honest and enterprising purpose. The industry has advanced, moreover, by reason of new methods, modern appliances and improved facilities for economic operations and profitable results.

It is not the intention of this Bureau of Immigration to convey the idea that there was ever a period in its history when the mining industry of Colorado was excessively speculative. It is the purpose rather, to make the candid confession, that there was a period legitimately speculative rather than chimerical, which will always be associated with what is familiarly known as the "Leadville Boom." But it is worthy of special notice in this connection, that in the first year of that sensational development, there was an increase in the production of the precious metals of nearly $4,000,000, over the preceding year of 1878, and in the year following—1880—an increase of $12,000,000. This increase was mainly due to the actual development of the new Leadville discoveries.

As has been stated, this average was well maintained until 1888 when there was an increase of $6,000,000 over the production of any preceding year and an increase of nearly $8,000,000 over the production of 1887.

The great increase of the past year is mainly due to the rich strikes at Aspen. The steady increasing output for a series of years is due in part to new discoveries, but the result mainly of the practical business methods which have been universally adopted.

The mining industry of Colorado has had a natural development and is now conducted upon the accurate principles of business that establish it as a sure and safe way to make money. Not in the nature of sudden and easy fortunes by wild investment in doubtful properties, nor by speculation in fraudulent stocks or schemes, but mainly by work upon the many mineral discoveries, old and new, that have been made in all the mining districts of the State. The mountains of Colorado are seamed and loaded with gold, silver, and all the metals of commercial use. Here is treasure for the world in the ages to come.

# PRODUCTION OF PRECIOUS METALS.

THE FOLLOWING TABLE REPRESENTS THE TOTAL PRODUCTION OF THE PRECIOUS METALS, BY COUNTIES, FOR 1888.

| COUNTY. | VALUE OF GOLD. | COINAGE VALUE OF SILVER. | TOTAL VALUE OF GOLD AND SILVER. | VALUE OF LEAD. | VALUE OF COPPER. | TOTAL VALUE. |
|---|---|---|---|---|---|---|
| Boulder | $ 189,241 18 | $ 380,240 66 | $ 560,481 84 | $ 13,439 18 | $ 183 58 | $ 583,104 60 |
| Clear Creek | 419,820 80 | 1,896,517 27 | 2,316,338 07 | 205,242 36 | 28,673 02 | 2,550,253 45 |
| Chaffee | 393,456 69 | 482,886 93 | 876,343 62 | 477,086 78 | 17,032 41 | 1,370,462 81 |
| Custer | 120 00 | 5,720 23 | 5,840 23 | 263,078 40 | . . . . . | 268,918 63 |
| Dolores | 17,469 60 | 204,571 94 | 222,041 54 | 5,280 00 | . . . . . | 227,321 54 |
| Eagle | 142,002 40 | 319,596 22 | 461,598 62 | 129,330 08 | 2,164 10 | 593,072 80 |
| Gilpin | 1,250,755 76 | 288,005 11 | 1,538,760 87 | 70,328 06 | 21,280 37 | 1,630,369 30 |
| Gunnison | 18,641 63 | 99,379 28 | 118,020 93 | 55,211 28 | 335 00 | 173,567 21 |
| Hinsdale | 2,667 00 | 142,458 84 | 145,125 84 | 65,807 28 | 304 85 | 211,237 97 |
| La Plata | 3,573 78 | 3,788 88 | 7,362 66 | . . . . . | . . . . . | 7,362 66 |
| Lake | 310,890 84 | 9,061,589 37 | 9,372,480 21 | 4,004,065 86 | 1,394 07 | 13,377,940 14 |
| Montrose | 12,000 00 | . . . . . | 12,000 00 | . . . . . | . . . . . | 12,000 00 |
| Ouray | 24,288 56 | 1,303,882 92 | 1,328,171 48 | 177,885 11 | 103,152 20 | 1,609,208 79 |
| Park | 33,945 28 | 744,044 30 | 777,989 58 | 416,989 60 | 1,725 25 | 1,196,704 43 |
| Pitkin | 12,706 16 | 7,158,327 13 | 7,171,043 29 | 783,032 51 | . . . . . | 7,954,075 80 |
| Rio Grande | 16,260 00 | 4,827 79 | 21,087 79 | . . . . . | . . . . . | 21,078 79 |
| Saguache | 4,220 00 | 59,629 89 | 63,849 89 | 9,386 64 | 2,847 50 | 76,534 03 |
| San Juan | 190,325 12 | 368,900 47 | 559,228 59 | 177,236 75 | 19,161 33 | 755,626 67 |
| San Miguel | 424,706 20 | 1,095,693 78 | 1,520,399 98 | 34,732 60 | . . . . . | 1,555,132 58 |
| Summit | 282,209 44 | 650,884 03 | 933,093 47 | 116,059 13 | 51 93 | 1,049,204 53 |
| Miscellaneous | 8,785 00 | 2,004 00 | 10,789 00 | 2,050 00 | 4,950 00 | 17,789 00 |
| Total | $ 3,758,098 46 | $24,272,949 04 | $28,031,047 50 | $ 7,006,691 62 | $ 203,255 61 | $ 35,240,994 73 |

NOTE.—Gold estimated at $20.00 per ounce fine; silver at $1.2929 (coinage rate) per ounce fine; lead at 4.4 cents, and copper at 16.75 cents per pound.

The foregoing table was compiled for the United States Treasury Department by Professor George D. Munson, late melter of the U. S. Mint at Denver. The figures given are officially reported by Government agents and mine superintendents of the several mining counties. As a great number of smaller producing properties are not included in the reports from which the summary of counties is made, this aggregate of production for one year should be regarded as an underestimate rather than an exaggeration. The number of mines reporting, and from which the figures of total output for the year are given, was less than 700. Of well developed mines, partly developed mines, small paying properties and good prospect discoveries, there are many thousands in the State. So that, after all, the official table must be regarded as an underestimate of the real production, inasmuch as there was no report from the greater number of small-paying mines.

There is one leading question which very naturally springs from the people of all countries concerning the mining industry of Colorado, and that is the question which demands an answer from the Bureau. The question is: "What are the opportunities for making money in mining?" It is a familiar but truthful saying in the mountains that "The mining business of Colorado is yet in its infancy." The significance of this saying can be defined in two brief sentences. There are thousands of square miles of undiscovered mineral lands in the State, and there are thousands of located mining properties that are as yet undeveloped. It has been the history of many of the richest mines in the State that in the first stages of their development they were regarded as of little or no value, and often abandoned by the original locators. There are many thousands of such prospects in the State, and they await only the same application of genius and labor that has brought so many millions of treasure out of the Rocky Mountains in the past ten years. Prior to 1879 and 1880, the mining enterprise of Colorado was mainly the effort of discovery. The few years which have elapsed since that time have been a period of development. That this development work has only a fair beginning is a self-evident truth. The deeper the mines are worked, the broader the scope of development and the greater the amount of gold and silver extracted, the more numerous and surprising are the discoveries of the precious metals, while the most encouraging results are obtained from the very beginning of the development work on many of the new properties.

But there are other features of the mining industry which place it upon a money making basis, differing from the purely speculative method. In the early days, the prospector located his claim only to sell it when a good opportunity and a fair price was offered. Now, a great many mines of no large pretensions are operated by the owners, who perform the labor of development themselves and make a steady income of handsome profits. From this source a large portion of the mineral wealth of the State is obtained. Thus, by the application of honest, intelligent labor, the mining industry of Colorado has become a legitimate business, whether the property is rich or poor. As there are great plantations and small farms in the world, each equally important according to the purposes they serve, so there

are large and small mines, rich and poor mines, each proportionately profitable by the application of diligent industry, scientific methods and common sense. The mine owner of Colorado, whether his property is large or small, conducts his operations upon strictly business principles, and thus his investment and his labor become profitable.

It is not, however, the intention of these practical observations to convey the idea that speculation in mining stocks and mining property is an illegitimate means of making money. Under the present system of mining in Colorado there can be no difference of principle between the purchase of mining property or mining stocks and the purchase of a farm or herd of cattle. It is within the means of the purchaser to ascertain in advance the exact nature of the purchase which he desires to make. If he should choose a richly developed mine, he has the opportunity of thorough investigation in order that he may not be deceived. If he should select a small property, or a mere prospect, at a small price, both the seller and the buyer must necessarily take the gambler's chances on the result. In this event the buyer has the advantage of determining the possible value of the location of the property with reference to the general mineral formation, or its situation relative to contiguous mines.

Under the influence of such logical views as the foregoing, there has been a great awakening and renewed activity in the mining business of Colorado within the past two years. It may not be a little surprising to readers abroad that within this period the general work of preparation and the supply of improved and powerful machinery for progressive operations in mining has been nearly double that of any period in the history of Colorado, while the beneficial results of operations within these two years is seen in a marvelous growth of the towns, cities and agricultural districts of the State.

It is a fact that can be easily substantiated by the most reliable records, that there has never been a lull or depression in the mining industry of the State. A few large producing mines have failed or dropped off in their annual yield; a few others have been abandoned, and some defective formations have caused disappointment and disaster to the owners; but while as a result of these irregularities there has prevailed no little degree of skepticism abroad, the miner has continued steadily at work; new fields have been explored, many new discoveries made, great bodies of high-grade ores have been developed, and, happily, just in the midst of what may properly be called the doubtful period, Colorado takes her proud position in the front rank as the leading ore producer of the nation, with a record of over $35,000,000 value for 1888.

While it is not the desire of the Bureau of Immigration to excite a sensational interest in Colorado's mining industry, it is only fair to repeat that within the numerous mining districts of the State there remain not only thousands of prospects yet to be developed, but thousands of discoveries yet to be made. Many of these prospects are located upon the great carbonate deposits and fissure veins which are already yielding such immense wealth to the country.

But few people living in parts of the world remote from the mining regions know what a prospect is. For the benefit of the uninitiated, it may be sufficient to explain that a prospect is merely a "hole in the ground," located upon a mineral deposit, or lode, or a fissure vein, or at a place where there is mineral in sight in some special form, in conformity with the United States law concerning the location of mineral lands.

In every reputable district there are contiguous to the richer mines a number of smaller mines and undeveloped prospects. There is always the probability that these prospets may be equally rich in mineral. These prospects have not been developed because the owners are waiting either for the opportunity of a sale or for some stroke of fortune that will enable them to prosecute development work.

These prospects—these "holes in the ground" represent identically the same situation in mining that gave the great impetus to mining in 1879 and '80, and which turned the tide of fortune in favor of many a poor man. In this great aggregation of mere prospects, which to-day are cheap in the market, is the assurance of treasure for the centuries to come—treasure that is waiting only for the heart of faith and the hand of industry to take it from its rock-ribbed vaults and convert it into bullion. In the mining industry, this is the main opportunity for the capitalist or the immigrant seeking fortune in Colorado. As one of the great advantages to mining in Colorado, it is especially worthy of mention that the development of many rich mining districts is due for the most part to railway development. With the exception of Gilpin and Clear Creek counties, the mining districts of the State were entirely without railroads prior to '79–'80. Now, the State is fretted with these lines of steel, which reach every important mining camp in Colorado. The introduction of improved and powerful machinery has also caused a transformation in the mining industry. Ores are now mined at a cost of cents where formerly it was dollars. The industry is no longer regarded as one affording a precarious sustenance to a horde of nomadic adventurers. The wealthiest capitalists of Colorado are those who have made their fortunes out of mining. It has built cities in the mountains and on the plains; has developed the coal and iron resources of the State; led to the establishment of numerous manufactories, and aided in the advancement of every industry in the State.

The great future of mining in Colorado can be estimated by the history of the past and the great opportunities of the present. Both the past and the present operations serve to demonstrate more clearly than all else that the greatest opportunity for fortune in Colorado lies in the mining development of the future.

## LEAD AND COPPER.

THE value of the lead which has been produced in Colorado since the beginning of mining operations in 1859, including the product of 1888, was $38,121,552; the value of copper was $5,143,847. The amount of lead produced in 1888 was 65,529 tons, valued at $5,776,552; the amount of copper in 1888 was 961,548 pounds, valued at $153,847.

There is but one mine in the State that is worked exclusively for lead. All other lead produced in the State is from ore which is gold and silver bearing, the lead forming a portion of its value. In many instances, however, the value of the lead is equal if not greater than that of the precious metals mined with them. The larger proportion of the lead thus mined is used by the local smelters and refining works in the treatment of ores. The surplus is used principally in the State for the manufacture of lead pipe, sheet lead and bar lead. The ores of the precious metals containing lead also carry a large per cent, of zinc, which aggregates an enormous quantity. As there are no means at present for utilizing this metal at home, it lies on the dumps at the mines in great quantities, awaiting the day when enterprising capital will take it away and turn it into the channels of its usefulness.

As to the copper product, though at present comparatively small, it steadily maintains its proportionate increase in the general mineral output, and is now being extensively converted into copper matte. A plant is also under construction for the manufacture of copper sheet and wire.

## IRON DEPOSITS AND PRODUCTS.

THE iron industry of Colorado remains an undeveloped field of great promise. It is well known to many scientific explorers in the United States that large bodies of iron are very numerous in Colorado. The real extent of these bodies, and the true value of the ores discovered, have not been fully determined. But so far as the results of investigation and practical experiment have shown the iron ores of Colorado are abundant and are, in large proportion, of standard quality. The practical tests which have been made, however, have not been merely in the nature of experiment, but of extensive manufacturing. Such operations being confined principally to one establishment in the State, the fact remains that the iron industry of Colorado is practically an unexplored field.

Pig iron was made from native ores as early as 1863. These ores were found on the plains between Denver and the foot hills. From a cold blast furnace of faulty construction, two and a half tons of excellent pig iron were produced daily. After the year 1865, the experiment was abandoned, and there was no special effort in the manufacture of iron from native ore till 1879, when a very extensive iron and steel plant was established at

Pueblo, and this is the only establishment manufacturing exclusively from Colorado ores. The present capacity of these works for annual production is in round figures about as follows:

| | TONS. |
|---|---|
| Pig iron | 25,000 |
| Steel rails | 16,500 |
| Iron castings | 1,300 |
| Cast-iron pipe | 1,200 |
| Merchant bar, etc. | 4,700 |
| Nails—100-lb. kegs—45,000 | |
| Spikes | 2,500 |

There are other large establishments in the State which use in a small proportion the native ores in connection with imported material; and while the volume of such material used is comparatively insignificant, it is sufficiently large and the results of such excellent character as to establish the permanency of the iron industry of Colorado beyond question.

The areas of the State, where iron deposits are known to exist in the largest bodies and of the best quality, are embraced by the counties of Jefferson, Boulder, Fremont, Chaffee, Gunnison and Pitkin, though the ores are found in many other sections. The most recent explorations of Colorado's iron fields were made under the auspices of the Colorado School of Mines. The first and most important matter determined by the investigation was as to the proportion of iron relative to all other matter to be found in these ores. The results given of the analyses made are prefaced with a statement of the many conditions under which the iron extracted may or may not be useful. In enumerating the detrimental elements, it is stated that the presence of phosphoric acid in any large quantity is such a detriment to the manufacture of good steel that "We may say that an ore will or will not yield steel-making iron according to the percentage of phosphorus which it contains. The variations of different ores as to their percentage of this substance are extreme, running from mere traces, up through figures still allowable for Bessemer metal, then for the various grades of foundry iron, and finally to amounts which would render the metal unfit for any use."

While the ores of Colorado show the usual great range of this substance, few localities in the United States will produce ore so non-phosphatic as those extracted from some of the larger iron bodies of Colorado.

In conclusion of a thorough discussion of the analysis made, it is stated that iron ore may run as low as 35 per cent., and yet be quite profitably worked, but this would only be true of the easily reduced carbonates, so rich in lime or magnesia as to be almost or quite self-fluxing. Following these observations are presented tables of analyses of average specimens from some of the principal ore deposits in the State.

MINE IN SAGUACHE COUNTY.

(Over 100,000 tons extracted.)

| | | | |
|---|---|---|---|
| Silica | 9.33 | | |
| Water | 10.51 | | |
| Alumina | 3.43 | | |
| Oxide of Manganese | 0.35 | | |
| Lime | 0.83 | Iron | 52.66 |
| Magnesia | 0.06 | Phosphorus | 0.031 |
| Peroxide of Iron | 75.23 | | |
| Phosphoric Acid | 00.71 | | |
| Sulphur | 00.19 | | |
| | 99.830 | | |

This is a brown hematite, containing over 58 per cent. of metal.

CALUMET MINE IN CHAFFEE COUNTY.

The result of this analysis is:

| | |
|---|---|
| Iron | 63.28 |
| Sulphur | 0.61 |
| Phosphorus | 0.007 |

This is a Bessemer ore of rare merit, so phenomenally low in phosphorus that it could, by mixing, be made to carry ores which by themselves are too high in that impurity.

BOG ORE—GUNNISON COUNTY.

A great body of ore half mile in extent and of unknown depth.

| | |
|---|---|
| Iron | 50.73 |
| Phosphorus | 0.145 |

This ore is a chemical curiosity, containing figures on certain constituents which are phenomenal for highness and lowness, respectively. After burning, this ore would be enriched to nearly 67 per cent. of metallic iron by the loss of water and metallic iron. The phosphorus, too high for Bessemer, is low enough for pig iron intended for nearly all other purposes.

In Gunnison county the great Iron King deposit is reported upon as follows:

"The Iron King is a deposit of extraordinary and almost indefinite possibilities. The outcrop is enormous, high in grade, and extends for a mile in the mountain side. The deposit is in the silurian strata; lies between quartzite and limestone; is a magnetic ore; the analysis revealed very little sulphur, while the phosphorus is so low as to class the ore at once as a Bessemer material."

Samples from the whole mass gave:

| | PER CENT. |
|---|---|
| Metallic iron | 49.71 |
| Sample from whole cut, 90 feet—metallic iron | 52.16 |
| General sample from 40 feet—metallic iron | 55.62 |
| Samples from whole length—metallic iron | 58.19 |
| Samples from best exposures near lime stonewall—metallic iron | 67.27 |

Analysis of general sample:

| | PER CENT. |
|---|---|
| Water | .65 |
| Silica | 3.85 |
| Iron metal | 58.75 |
| Sulphur | 0.123 |
| Phosphorus | .44 |
| Lime | Trace |
| Magnesia | Trace |

Speaking with special reference to the iron resources of Gunnison county, the report says: "Whatever may be the future of the industry in the Gunnison region, there can be no reasonable doubt of the existence of good ore in great quantity. Nor do I think are the conditions lacking for the establishment in the Valley of the Gunnison of iron industries of great magnitude and importance."

The prerequisites of success in the manufacture of cheap pig metal are then given as follows:

*First*—Abundant ore, running above 55 per cent. of metal at a low cost of mining.

*Second*—Coking coal, low in ash and sulphur, obtainable in large quantities.

*Third*—Pure limestone.

*Fourth*—Reasonable proximity of all the mined products to the furnace site; and

*Fifth*—A scale of wages which will bring the item of labor per ton well inside of two dollars.

In all these respects, it is stated, Gunnison county is favored far beyond the majority of furnace sites in the United States. It is also stated that pig iron can be produced as cheaply in the section named as in the most favored region of Alabama. In making the above quotations, it is not designed to call special attention to any particular section or county of the State, but to present from the most authentic and learned sources statements concerning the possibilities of iron production and manufacture in Colorado. The discoveries in Gunnison county simply give emphasis to the most positive declaration that the best quality of iron exists in great abundance in the State. The result of ten years' labor by the Colorado Coal and Iron Company demonstrates beyond all question the practicability of mining these ores and converting them into all manner of useful wares in iron and steel. Within the past year an extensive rolling mill and iron manufactory has been established at Trinidad, with the design of using native ores for its products. As there is no limit to the supply of raw material, the iron manufactory will necessarily become ere long one of the leading industries of the State.

## A GREAT AGRICULTURAL STATE.

AGRICULTURE has been of phenomenal growth in Colorado during the past ten years, and it is now regarded as one of the foremost wealth producing industries of the State. Since the days when farming by irrigation was first introduced along the mountain streams near Denver, a constant increase in this industry has been one of the chief promoters of the State's development. Farm products were raised in Colorado as early as 1860, but owing to the sparse population, the limited areas of available land, and the many disadvantages of such labor, farming operations were little more than an experiment and scarcely taken into account as an established industry until 1870, when the true history of agriculture in Colorado began. In that year the first statistical record of Colorado farm products is given. Now, the industry has grown into great importance and is wide-spread in its acquisition of land.

The State is blessed with natural resources for the most perfect system of irrigation known in the United States, and hitherto most of those who

have engaged in agriculture in Colorado have done so under the irrigation process; but within the past five years, the "rain belt" has extended far westward, toward the center of the State, and thus a large portion of eastern Colorado is rendered valuable for farming without irrigation. Crops have been raised in these sections during the past five years without water, except the natural rain-fall.

Within the past two years (1887-1888) large farms have been established in these sections, and in many instances the soil has yielded fifty to seventy-five bushels to the acre, the products consisting of the leading cereals, potatoes and the hay-making grasses.

The total yield of the principal agricultural products, as reported by the assessors of the various counties for 1888, including wool, was as follows:

| | BUSHELS. |
|---|---|
| Wheat | 2,516,843 |
| Corn | 908,224 |
| Rye | 38,641 |
| Oats | 1,563,385 |
| Barley | 197,016 |
| Potatoes | 2,856,864 |
| | TONS. |
| Hay | 467,800 |
| | POUNDS. |
| Wool | 9,878,586 |

Total value of principal products, including wool, $13,584,131.

In view of the well-known fact that the assessors' returns never represent over two-thirds of the actual value of taxable wealth, it would be fair to add about $5,000,000 to the above figures, which would give a total of $18,584,131. To this sum there should be added the value of orchard and all other products of the farm, which would not fall short of $30,000,000, and for the year 1889 the revenue from the soil in all departments of agriculture, including live stock production, dairy and garden products, etc., will, according to the great increases which have been made, reach the sum of $35,000,000. Should results prove these figures approximately correct, then agriculture will have reached a position on a par with the present status of mining in the value of its products.

The increased acreage this year would indicate an increase of production of not less than 25 per cent. So it will be seen by these estimates that the revenue derived from agriculture is not far below that of the mining industry.

Agriculture in Colorado has many peculiarities, and these peculiarities must be understood before its present status can be properly accredited or its possibilities appreciated. Colorado soil and climate differ in many respects from those of any other State or country. One virtue ascribed to the soil, is that it is everywhere strongly impregnated with mineral matter. The general nature of the soil varies and is represented by the gravelly, sandy, clayey, loamy, calcerous, peaty and adobe soils of the best grades, suitable and remarkably well adapted to the production of small grain,

grasses, vegetables, fruits and trees that grow elsewhere in this latitude. Under the benign influence of a congenial climate, aided by the simple methods of irrigation, vegetation is spontaneous and abundant, while the soil is wonderfully responsive to scientific appliances.

Experiments in the past ten years have proved the possibilities of agriculture so far that the question is not "What can be raised?" but "What can be raised to the greatest advantage?" The best adaptability shown thus far is for the culture of wheat, corn, rye, oats, barley, potatoes, alfalfa and the hay-making grasses; apples and small fruits have an important place, while vegetables of all kinds grow luxuriant and abundant.

Buckwheat, tobacco and sorghum sugar-cane can be grown in the State successfully, but these products have had no crops of account. Experiments in southern Colorado have proved that tobacco can be grown of a superior quality and with abundant yield.

In growing wheat, oats, barley and rye, the soil and climate, aided by irrigation, are so much better suited to the cereals than in rainy countries that the grain is much heavier, more prolific and better feed. So improved are they in every way that when compared with the seed and the grain raised from it the first year they are so different as not to be recognized as the same. The dry climate has a tendency to make all white grain whiter and all colored seeds much more clearly defined in color. The wheats received here from all countries for trial become much better in milling properties after being raised two or three years. The bran is thinner and the gluten more abundant and of better quality.

The cost of raising wheat per acre varies on account of the yield and difficulties attending its cultivation. The average cost of seeding, irrigating, harvesting and preparing it for market, sacked, is about $12.50 per acre. Many farms lay so well and have water so convenient that some crops are produced for half that amount. There have been recent yields the yield at an average of a little less than 20 bushels. Oats yield much of 48, 54, 66 and 77 bushels per acre. The average yield over the State for the past ten years has been 22 bushels per acre. Oats yield much more and weigh from 40 to 54 pounds per bushel.

Barley and rye are fine crops. They nearly double the size of the seed received and the common winter rye becomes in many instances a perennial producing crop.

Corn, almost a failure in the early stages of agriculture, has become a very successful crop, and gives promise of a rich development. For the past three or four years certain varieties have become so improved and acclimated that in nearly all portions of the State they are successfully grown. The valley lands on the western slope, the "divide" and the "rain belt area" of eastern Cororado are sections especially well adapted to the cultivation of corn. Corn requires much less water than the small grains. It is often raised without a single irrigation and has been successfully matured at an altitude of 6,000 feet. So much is now raised that it has become an important factor in feeding. The production of corn for 1888 is reported at

near 1,000,000 bushels, and the acreage is so greatly increased that the estimate for this year (1889) is 2,000,000 bushels. The average cost of production is about $11.50 per acre. The average yield is about 35 bushels.

Irish potatoes form a staple crop and a large source of revenue to Colorado. Colorado potatoes are among the finest raised on the Continent. They are grown in all parts of the State. Besides supplying the Colorado markets, the Colorado potatoes are shipped in car-loads to New Orleans, Kansas City, St. Louis, Fort Worth, Texas, Chicago, Omaha, Buffalo, New York, Pittsburg and Cincinnati.

As with all agricultural countries the yield per acre depends upon location, soil, climatic influences and methods adopted in the cultivation of the crops. The farm lands of Colorado have three natural divisions, each differing in climate and soil. These divisions are the open plains lands east of the mountains, the valley lands in southern Colorado, and the valleys and mesas of the western slope. For all sections combined the average productions per acre is estimated by the most careful statisticians as follows: Wheat, 22 bushels; oats, 45; rye, 35; potatoes, 150; corn, 35. It must be remembered that in some large areas the average all-around is greatly in excess of these figures. The capabilities of Colorado soil, when properly cultivated, have been fully tested by annual experiments at the State Agricultural College. The maximum results have been as follows: Wheat, 91 bushels, field crop; largest yield of rye, 52 bushels; oats, 102 bushels; potatoes, over 400 bushels to the acre; barley, 72 bushels; corn (shelled) has been made to yield 67 bushels.

The grasses, both tame and wild, have been the most important of all stock foods. The tame grasses are successfully grown, make large yields of very nutritious hay, and nearly double in valuable aluminoids, when compared with the same grasses in rainy sections. Timothy, orchard and blue grass make two crops a year, producing one, one and a half and two tons to the acre.

The clovers are among the best forage plants. They have a healthy growth always and make two and three crops a year.

Alfalfa now leads all agricultural products in Colorado in acreage, tonnage and value of product. It is fast taking the place of all other hay-making plants, and is so fast encroaching upon the domain of wheat that there is annually a perceptable decrease in the yield of that cereal. The growth of alfalfa is enormous. No forage plant is known to equal it. It is relished by all kinds of stock, and cattle, horses, sheep and hogs thrive upon it as upon no other feed ever given them in this country. Having once a good stand, it tenaciously defies all effort to eradicate it. It throws down a strong top root, which, when it finds moisture, has the ability to withstand the severest drouth. For hay, it is remarkably prolific, making three and sometimes four cuttings during the season. The yield varies from one and a half to two tons per cutting, with three to four cuttings per year. On some lands the average is higher. When fed with roots and grain, it is the finest of all beef-producing feed. For milch cows, it is superior to all

grasses or clovers. One stockman having an ordinary crop of alfalfa claims to have pastured 3,000 sheep the year round on 300 acres—10 sheep per acre—that the sheep sheared from 10 to 12 pounds of wool, worth 20 cents; deducting all expense of herding, loss of lambs, rent, etc., and adding lambs, each sheep paid a profit of $2.50 per acre. For horses, on the farm, alfalfa is the best hay. It produces no heaves, no derangement of the digestive organs. Hogs grow rapidly and fatten when turned in upon an alfalfa pasture.

The cultivation of alfalfa is causing a revolution in the agricultural enterprise of the entire State and making a change in every department of the live stock business. The effect at present is to lessen the average in general agriculture proportionately to the number of farms and enhance profits in the life stock industry. In the first case a large proportion of the lands hitherto devoted to wheat has in the past two years been given to alfalfa. In the present year (1889), entire farms have been thus transformed. The same may be said of other cereals and farm products, though in a less measure. In regard to wheat there is a two-fold reason for this change. Continued use of the ground and a lack of fertilizers has caused a falling off in many instances of 33⅓ per cent. in the yield. The second reason is the greater immediate profit from alfalfa by feeding it to cattle. This is the main reason for the great increase in its culture, and this accounts in a large measure for the revolution which is going on in the life stock industry, which for the past three years has been steadily withdrawing cattle from the ranges and placing them upon the farms, and it is the main support of the new branch of the industry which has of late years prompted the reproduction of the fine breeds of cattle in Colorado. Correspondingly it has also improved the sheep and wool growing industry, producing more sheep and finer wool.

In 1880 the total production of alfalfa in Colorado was 1,000 tons, valued at $12 to $15 per ton.

In 1888 the crop of alfalfa was of greater value than that of all the cereal crops combined. The alfalfa crop of that year covered 250,000 acres, and the production was estimated at over 1,000,000 tons. The acreage for 1889 assures a crop of 3,000,000 tons.

Unlike all other agricultural products of Colorado, all the alfalfa raised is kept in the State. It is fed to the cattle, sheep and swine, and ultimately reaches the general market in the nature of beef, mutton, pork and wool.

It also serves another valuable purpose. It is the finest honey producer known in the world. With the alfalfa fields to feed upon, the increase in apiary products has been enormous. The bee keepers of Colorado produce annually half a million pounds of honey of the finest and most delicious quality.

The question of irrigation in its relation to agriculture comprehends the future possibilities of the industry in Colorado, and this is one of the great problems of the near future. When the day of necessity comes there will be no difficulty about the solution of the problem. The plains and the valleys are dependent upon the mountains for their supply of water. The

mountains depend upon the elements. The elements have a world of resource and they are never failing in their bounty. At present the supply of water is measured by the facilities for obtaining it, and both facility and supply are barely equal to the demand. To accommodate the increase of population at present the elements lend their aid to the methods of irrigation by watering a large portion of the plains. The future will demand a great increase of the water supply. Generous nature and the ingenuity of man may be relied upon to furnish all that is needed.

For the benefit of the immigrant and for those seeking locations it is only necessary to add this summary of facts: All the lands of Colorado not forming the mountains themselves, possess a fertile soil; all lands accessible to water are richly productive; there are millions of acres of unoccupied Government and State lands available for agriculture by irrigation; there are millions of acres within the "rain belt" region, which are being rapidly taken and settled upon; there are thousands of claims already converted into farms which are obtainable to the new settler. In a word, the agricultural lands of Colorado offer the opportunity of homes and fortunes to many hundreds of thousands of people who are destined at no distant day of the future to take their places in this broad, fruitful field of industry.

## IRRIGATION.

EIGHT principal rivers and their countless tributaries, having their source in the mountains, form the water supply of Colorado. These streams have their origin in the central portion of the State, flowing east across the plains, northward through the parks and mountain passes, south and west through the rocky cañons and down the broad, fertile valleys in their course to the sea. Their tributaries are the numerous creeks and springs which, starting in little rivulets from the snow banks at lofty altitudes, or percolating the rocks from miniature lakes lying between the peaks, ripple down the steep inclines, uniting their forces in the valleys below. These rivers are the Arkansas, the South Platte, the Rio Grande, the San Juan, the Gunnison, the White, the Yampa and the Grand. Of other important streams bearing the name of rivers there are twenty or more flowing through the State. All are important in their uses for irrigation, for water power and as a general source of water supply. Nearly all the larger streams flow through agricultural sections and become the chief sources of water supply to the farms.

Under the laws of the State which provide for the equable distribution of water for irrigation purposes, Colorado is apportioned into five water divisions, each of which embraces one of the main streams and its tributaries. Each water division is under the control of a Superintendent of Irrigation. Each water division is subdivided into water districts and each

water district is provided with a Water Commissioner. It is the duty of the Water Commissioners and the Superintendents of Irrigation, who are under the general supervision of the State Engineer, to distribute the water of the natural streams to the irrigating ditches and reservoirs in accordance with the priority of right to the use of the water, as established by the District Courts of the State.

A recent estimate, made by the State Engineer, places the areas of irrigable land in the State at 34,560,000 acres, divided as follows:

| | SQUARE MILES. | ACRES. |
|---|---|---|
| San Luis Valley | 3,096 | 1,981,440 |
| Southwestern Colorado | 1,080 | 691,200 |
| Western Colorado, (Grand River valley) | 360 | 230,400 |
| Western Central Colorado, (the Gunnison and Uncompahgre valleys, etc) | 720 | 460,800 |
| Northwestern Colorado, (valleys of the Yampa, White and other rivers) | 1,980 | 1,267,200 |
| North Central Colorado, (valleys of Upper Grand, North Platte and other streams) | 576 | 368,640 |
| Central Colorado, (Grand Parks, Upper Arkansas, etc). | 720 | 460,800 |
| In sundry small areas | 3,600 | 2,304,000 |
| East of the mountains | 41,868 | 26,795,520 |
| Total | 54,000 | 34,560,000 |

It would be misleading to say that this entire area of 34,560,000 acres is accessible to irrigation. The land is accessible, provided the water and facilities are sufficient. This is the vital question upon which for the most part depends the future advancement of argriculture in Colorado. It is the opinion of the leading civil engineers of the West that, by a system of winter storage of water in reservoirs, the larger part of these great arid areas can be reclaimed as agricultural land. The most reliable official estimates place the aggregate length of irrigating canals and ditches in the State at 6,000 to 7,000 miles. These ditches, large and small, are numbered by the thousands, and if the entire system, as it now is, was amply provided with water, it would irrigate many millions of acres. Of this vast area of arable lands, 1,500,000 acres were under cultivation in 1888. These lands were divided among the different products, as follows:

| PRODUCTS. | ACRES. |
|---|---|
| Wheat | 165,000 |
| Corn | 226,000 |
| Alfalfa | 250,000 |
| Vegetables, grasses and other farm products | 859,000 |
| Total | 1,500,000 |

The acreage of cultivated lands in 1889 was largely increased by numerous settlements in the "rain belt" of eastern Colorado, and by the addition of many large canals and ditches to the irrigation systems of the State. The area of cultivated land is thus variously estimated at 1,700,000 to 2,000,000 acres.

As it is an established fact that the possibilities of agriculture in Colorado are only limited by the water supply, it remains only for the genius of these enterprising, progressive western people to devise the means of bring-

ing all the water required and at the time when most needed from the streams and natural reservoirs of the mountains to irrigate the desert waste. At present the facilities for bringing the water to the farming sections are ample, but the supply of water in future must depend largely upon economical methods of storage and distribution. This problem is now receiving the serious consideration of the Government in behalf of all the arid region of the West, and the people of Colorado are actively engaged in devising the means for its practical solution. In the meantime it must be remembered that with the large bodies of land now under these irrigating ditches, and with the great rain belt region of eastern Colorado—an area of about 16,000 square miles, over one-seventh of the entire area of the State—there will be a surplus of agricultural land immediately available to the immigrant farmer for many years to come. Thousands of miles of new irrigating canals varying in size and length have been constructed during the past three years. These canals ramify great tracts of the most fertile but less populated parts of the State. They have been constructed in anticipation of the population which is now moving steadily westward and into the State. The settlements that are being made in these new parts are of a permanent character, and everywhere the great fields of grain spreading out over the plains, and the many new towns and villages that spring up in every new center of population give the unmistakable evidences of prosperity.

The same conditions with reference to new settlement exist in eastern Colorado, where the lands are watered exclusively by rainfall. Large agricultural communities and thriving towns with their institutions and their industries have become numerous within the past three or four years, and the present year is especially marked with the increase of people and with success in their enterprising undertakings.

The advantages of irrigation to the husbandman are manifold. In the first place, he can raise wheat, oats, rye, barley, grasses, clover and corn every year, without a failure, as cheaply and abundantly as in any other State or section. All the vegetables grow luxuriantly and seldom fail to make large crops, which find ready market at paying prices. His land, unlike that in most States, needs, as yet, but little if any fertilizers where he observes a thorough system of rotatives. Being strong mineral, underlaid with clay generally, his soil endures cropping for a long period without any apparent diminution of fertility. The yearly change of crops keeps it in a healthy and productive condition. In the second place, he has entire control of the making of his crops after germination, inasmuch as when they need water, all he has to do is to apply it, and when wet enough he can keep it off. The artificial application of water to growing crops always secures average yields every season, and that yield is always superior in quality. No crop is burnt up by continued drought, and none destroyed by heavy rains and excessive moisture. The farmer regulates these by a knowledge obtained from the study of his crops. In the third place his grains, grasses and vegetables are superior in quality in not having too much, but just enough moisture at times when they most need it.

For the benefit of those who, living remote from the arid regions, have never witnessed the operations of irrigation, a brief description of the method is given, and it may suffice to convey a general idea merely of this plan of distributing water through the fields:

A large ditch or canal conveys water from one of the mountain streams, stretching out for many miles upon the plains, often winding its way around and over the intervening hills till it reaches the distant fields. Leading from this main ditch at intervals as frequent as there are farms to irrigate, are laterals, or smaller ditches, which are made to run along beside the farms on the upper side of the incline. From these first laterals still other laterals are made to run into and across the fields, and leading from these a number of furrows are made through the fields with a plow. By these channels the water is made to flow through the land. The water turned from the main canal into the first lateral, thence into the second, and thus into the furrows, which may be 20 or even 50 feet apart, soaks the ground till the desired moisture is obtained. This is irrigation. By a system of gates and gauges at the head of the laterals, the water is measured, as required by law; any required amount may be obtained. The furrows which distribute the water are run in such direction, required by the lay of the land, as will give them only a slight descent. A hoe or shovel full or earth thrown into the furrows at their entrance, keeps them closed. When the land needs water, the little gate or sliding board at the canal is raised as far as needed to let in the required amount of water. This is raised or lowered as the case may be necessary in the course of irrigating a field. The larger furrow, or second lateral, being filled with water, the irrigator opens the upper ends of the little furrows by taking out a shovel full of earth. The little furrows then become filled. The water seeping through or running over the sides, gently trickles along over the surface and soaks into the ground. Flowing thus from each side, the waters soon unite between the furrows and thus the moisture becomes uniform and general. If it is desired, the farmer may remove all obstructions and by clipping off a bit of dirt at intervals from the sides of the furrows, flood his land till the water will everywhere cover the surface. In this way he can, in an hour or two, give an entire farm what would be equal to a heavy, soaking rain. This may be done so deeply that the growing crop may flourish through the hottest season without another irrigation. These floodings are often given about the heading out time, and the result is the production of heavier, more perfect grain.

One fact in connection with irrigation is particularly worthy of note. The longer a field is cultivated by irrigation the less water it needs from year to year, because of retained moisture in the ground several feet below the surface. Thus the roots of the growing crops are continually fed by evaporation.

The amount of water used per acre during a season varies slightly, according to the nature of the soil and the lay of the land. By the economical use of water it is estimated that the amount required will not exceed fifty cubic feet per acre, but by its extravagant and careless use the average

runs much higher, many persons using seventy-five to one hundred cubic feet, where a much less amount would be sufficient and more beneficial.

The annual cost of putting water on the land is from $1.50 to $2 per acre, which includes needed repairs of ditch and cost of water; therefore a farmer in one of the Eastern States who raises about one good crop in three could well afford to sacrifice his Eastern property for a farm in Colorado, where by the inexpensive system of irrigation the crops are never failing. The certainty of raising a crop makes irrigation a reliable method; moisture is applied just when and where needed, and will insure a harvest generally far above the average where Nature is depended upon; in fact, the mountain farmer can calculate almost to a certainty the number of bushels per acre his harvest will bring. Not only this, but it has been demonstrated that the water secured from the high mountains contains a natural fertilizer peculiar to itself, which constantly enriches the soil, rendering the ordinary fertilizer unnecessary to a great extent. The quality of grain, vegetables and fruit produced by this system of farming is acknowledged to be superior, and the average yield per acre is better, than in the "rainy States."

## GOVERNMENT LANDS.

COLORADO contains 66,880,000 acres. It is estimated that one-half of this area is agricultural land. This estimate includes all plains land on the eastern side, upland valleys throughout the mountain system, and the parks, the mesas and the lower valleys of the western slope. Inasmuch as all the lower lands of Colorado which do not really form a part of the mountains possess fertile soils, which are made productive whenever sufficient water can be obtained, this estimate is not an exaggeration. But it is not designed to convey the idea that all this vast area is actually available as agricultural land. Within this great territory there are waste lands and lands denominated as grazing, which together would aggreate millions of acres. For all such lands 5,000,000 acres would be a fair estimate. Add to this amount 10,000,000 acres which are now assessable by the State, and deduct the total of 15,000,000 acres from the alleged 34,000,000 acres of agricultural land, and there is left a total of 19,000,000 acres of unclaimed land subject to pre-emption and homestead entry.

There are ten government land districts in Colorado. These districts are practically divided into three departments—agricultural, coal and mineral lands. The land offices of the respective districts are at, Central City, in Gilpin county; Del Norte, in Rio Grande county; Denver, in Arapahoe county; Durango, in La Plata county; Glenwood Springs, in Garfield county; Gunnison, in Gunnison county; Lake City, in Hinsdale county; Lamar, in Prowers county; Leadville, in Lake county, and Pueblo, in Pueblo county.

The agricultural lands open to settlement are mainly embraced in the following districts: Denver district, composed of the counties of Arapahoe, Weld, Washington, Logan, Lincoln, Sedgwick, Phillips, Grand, Larimer, Douglas, Elbert, Kiowa and Jefferson. These counties form the northeastern part of the State, famous for its fertile soil and rich agricultural products.

The Pueblo and Lamar districts combined embrace El Paso, Bent, Pueblo, Custer, Huerfano, Las Animas, Fremont, Otero, Prowers, Baca and Kit Carson counties. These counties comprise the southern, middle and southeastern counties east of the continental divide, the latter part including the great agricultural area along the valley of the Arkansas and its tributary streams, together with a large proportion of the rain-belt area of Eastern Colorado.

The Del Norte district, in Southern Colorado, embraces that splendid agricultural section of Southern Colorado which is so appropriately called the "Paradise of the farmer," San Luis Park, which stretches out a distance two hundred miles long by from forty to seventy miles wide, and lies between the mountains in the charming valleys of the Rio Grande, La Jara, Culebra, Conejos, Alamosa rivers and other smaller streams, from which the land is abundantly watered.

The Durango district comprises all the fine agricultural lands that spread out in great areas along the Las Animas, the La Plata, the Dolores and the Mancos rivers, in the southwestern part of the State, which is equally distributed between mining, agriculture and grazing.

The Gunnison district embraces a large mining country and includes the fertile agricultural valleys of the Gunnison and lesser streams.

The Montrose district embraces the mesa and rich valley lands of the western slope in Montrose, Mesa and Delta counties; richly productive of fruit and agricultural products.

The Glenwood district includes the coal and mineral regions and the broad, fertile parks and valleys of the great northwestern corner of the State, upon the western slope. In all these districts there are vast areas of unclaimed government lands, a great proportion of which are well supplied with water, rich in soil and abundantly productive, awaiting only the day when the enterprising immigrant will come and settle upon them. Each district has its separate advantages and different attractions, but each and all possess an equality of fertile soil, a delightful climate and every convenient facility for the pursuit of the farmer in all the branches of that industry. These lands are everywhere being rapidly pre-empted, but there will still remain millions of acres for occupancy for many years to come.

During the year 1888 the number of acres occupied by entries of all kinds in the several land districts was 2,630,026; of these entries 9,157 acres in mineral lands were taken, 8,128 of coal lands and 2,613,741 acres of agricultural lands. The same rate of settlement by pre-emption and homestead prevails to this date of 1889.

There is every reasonable inducement to the western immigrant seeking homestead to come to Colorado. Wherever the land is sufficiently watered by rainfall or irrigation he may establish a home almost without cost for the land, and if he be prepared for immediate operations, raise an abundant crop the first year of his residence. The three prime causes of the numerous settlements which have been made during the last three years were the great extension of irrigating canals in the northern and southern portions of the State, the bountiful crops of fruit and grains on the western slope, and the fame of successful agriculture in the eastern portion without irrigation. There could not possibly be a greater attraction for people who have a knowledge of the State and the foresight to grasp the grand opportunity. Millions of acres of the richest kind of land, already cleared, watered and ready for the plow at $1.25 an acre, or if the settler choose he may purchase railroad land at $2.25 per acre, or land in the possession of the land and cattle companies, or the irrigating companies, at a mere nominal price compared with its real value, with clear title and immediate possession, avoiding the tedious delay of making final proof. It is characteristic of Colorado that all reasonable assistance is given the new-comer in the agricultural settlements.

## HOW TO OBTAIN GOVERNMENT LAND.

AGRICULTURAL lands owned by the General Government are divided into two classes—one at $1.25 per acre, designated as minimum, lying outside of railroad land limits; the other at $2.50 per acre, as double minimum, lying within railroad limits. Titles to these are obtained by ordinary "private entry," and in virtue of the pre-emption, homestead and timber culture laws. Purchases at public sale are made when lands are "offered" at public auction.

PRE-EMPTIONS.—Heads of families, widows or single persons (male or female), over the age of twenty-one years, citizens of the United States or who have declared their intention to become such, under the naturalization laws, may enter upon any "offered" or "unoffered" lands, or any unsurveyed lands to which the Indian title has been extinguished, and purchase not exceeding 160 acres under pre-emption laws. A fee of $3 is required within thirty days after making settlement, and within one year actual residence and cultivation of the tract must be shown, whereupon the pre-emptor is entitled to purchase the same at $1.25 per acre, if outside of railroad land limits, and at $2.50 per acre if within the railroad land limits. A pre-emptor may submit proofs of residence at any time after six months, and obtain title to his land. At any time before expiration of time allowed for proof and payment, the settler may convert his pre-emption claim into a homestead. No person who abandons his residence upon land of his own to reside upon public lands in the same State or Territory, or who owns 320 acres of land in the same State or Territory, is entitled to the benefits of the

pre-emption laws. The latter provision does not apply to a house and lot in town.

HOMESTEADS.—Any person who is the head of a family, or who has arrived at the age of twenty-one years, and is a citizen of the United States, or has filed his declaration of intention to become such, is entitled to enter one-quarter section, or less quantity of unappropriated public land, under the homestead laws. The applicant must make affidavit that he is entitled to the privileges of the homestead act, and that the entry is made for his exclusive use and benefit, and for actual settlement and cultivation, and must pay the legal fee and that part of the commissions required, as follows: Fee for 160 acres, $10, commission, $6; fee for 80 acres, $5, commission, $4. Within six months the homesteader must take up his residence upon the land, and reside thereupon, and cultivate the same for five years continuously. At the expiration of this period, or within two years thereafter, proof of residence and cultivation must be established by four witnesses. The proof of settlement and certificate of the register of the land office is forwarded to the general land office at Washington, from which patent is issued. Final proof cannot be made until the expiration of five years from the date of entry, and must be made within seven years. The Government recognizes no sale of a homestead claim. A settler may prove his residence at any time after six months, and purchase the land under the pre-emption laws, if desired. The law allows but one homestead privilege to any one person.

SOLDIERS' HOMESTEADS.—Every person who served not less than ninety days in the army or navy of the United States during the "recent Rebellion," who was honorably discharged and has remained loyal to the Government, may enter a homestead, and the time of his service shall be deducted from the period of five years, provided that the party shall reside upon and cultivate his homestead at least one year after he commences improvements. The widow of a soldier, or, if she be dead, or married again, the minor heirs (if any), may, through their guardian, make a homestead entry; and if the soldier died in the service, the whole term of his enlistment will be credited upon the terms of required residence. Soldiers and sailors, as above, may file a homestead declaratory statement for 160 acres of land through an agent, after which they have six months in which to file their homestead. This latter entry must be made in person.

TREE CLAIMS.—Under the timber culture laws not more than 160 acres on any one section entirely devoid of timber can be entered, and no person can make more than one entry thereunder. The qualifications of applicants are the same as under the pre-emption and homestead laws. Land office charges are $14 for 160 acres, or more than 80 acres, when entry is made, and $4 at final proof. Land to be entered must be entirely void of timber. Party making entry of 160 acres is required to break or plow five acres during the first year and five acres during the second year. The five acres broken or plowed during the first year must be cultivated during the second year, and be planted to timber during the third year. The five acres broken or plowed during the second year must be cultivated the third year, and

planted to timber the fourth year. For entries of less than 160 acres, a proportionate number of acres must be planted to trees. These trees must be cultivated and protected, and at the end of eight years, or within two years after that period, proof by two credible witnesses must be adduced, showing that there were at the end of eight years at least 675 living, thrifty trees on each of the ten acres required to be planted; also, that not less than 2,700 trees were planted to each of the ten acres. Fruit trees are not considered timber within the meaning of this act. Having complied with the terms of the law, and made satisfactory proof of same, the settler receives a patent for the land. Title can not be obtained prior to the expiration of eight years and final proof must be made within ten years.

## STATE SCHOOL LANDS.

THE State Land Department is one of the most important branches of the State government, growing in a few years, under the superintendency of Register A. Sagendorf, from a modest, unassuming office to a bureau employing a skilled force of clerical aid. The State now owns about 3,000,000 acres of school land and 385,377 acres belonging to the other grants. Of the lands about to be acquired on account of indemnity, amounting to over 600,000 acres, at least 400,000 will, within the next five years, be brought under irrigation, and for productiveness will rank among the best in the State. A large share of these indemnity lands will be located in the Arkansas Valley and on the tributaries to that stream; hence, the climatic conditions will prove of material advantage to settlers. The amendment to the land laws enacted by the late General Assembly, affecting the terms upon which our lands will hereafter be sold, renders it possible for settlers to establish homes upon State lands on a very small investment. It reads as follows: "On lands selling for three dollars and fifty cents ($3.50) to twenty-five dollars ($25) per acre, ten per cent. of the purchase money on the day of sale, the balance in eighteen equal annual payments at six per cent. per annum. Lands selling at more than twenty-five dollars ($25), and less than seventy-five dollars ($75) per acre, twenty per cent. cash on day of sale, the balance in fourteen equal annual payments at seven per cent. per annum," etc. Under this provision of law, a quarter section of land at $3.00 per acre would amount to $560. Of this amount, ten per cent. in cash would amount to $56, and, annually thereafter, $28 with the interest at six per cent. on the amount remaining in deferred payments after each payment made. The character of the people who have settled upon these lands are thrifty, attracted hither by the climatic conditions and the growing property of the State at large. Much has already been said in reference to the agricultural and horticultural possibilities of Colorado, and it may be only necessary to add that the generous action of the State will doubtless aid in an increased impetus to the swelling tide of immigration. The last State census shows that the number of farms in the

State at the end of 1884 was 8,474, an increase of 88 and 6–10 per cent. over 1880. In the absence of census statistics for 1888, but based on estimates from most reliable sources, the number of farms now in the State is 20,000, and the products, in bulk and value, proportionately heavy. The lands to which the attention of prospective settlers is directed are now leased and the rentals yearly apportioned among the districts of the State for the benefit of the public schools. But the laws are such, that possession is easily acquired to any person making settlement. The bulk of these lands is susceptible of irrigation, and, after being placed under ditch, becomes the most desirable land for agricultural purposes. Settlers will find no hardships upon arriving in Colorado. The State, in almost every direction, is thickly settled and a feeling of hospitality is entertained for all new-comers. The lands belonging to the State are under the control of the State board of land commissioners, composed of the executive officers of the State. The register of the board has his office at Denver.

## THE LIVE STOCK INDUSTRY.

### CATTLE.

THE live stock industry of Colorado is undergoing a change which gives it a new phase with each succeeding year. This change is that of a steady improvement in the several branches of the business. With reference to cattle raising it means a revolution in methods and results. As to all other animals it means both an increase and an improvement. The history of cattle raising in Colorado dates from the time of the first gold discoveries in 1859. Until five years ago, or a less time, it was the second industry in the State in point of magnitude and profit. It is still one of the leading industries of Colorado, and stands at the head of the live stock interests of the State. The change which has recently taken place in the cattle business of Colorado is that of a transfer of the herds from the great ranges to the smaller ranches and farms, and in numerical strength it cannot be claimed that the business is at present progressive. This change is due mainly to the encroachment of agricultural settlements upon the public lands, once the broad and undisputed domain of the cattleman. Four years prior to 1888 it was estimated that there were a million cattle upon the ranges and half a million on the farms.

Within these four years many of the range cattlemen have reduced their herds or abandoned the business, and now the reports from official sources show that there are 1,000,000 cattle on the farms and 500,000 on the ranges. For a number of years there has been no increase in the number of cattle in the State, and while the estimated number stands year after year at 1,500,000 head, conservative cattlemen claim that there is a gradual decrease, and the figure given is only an approximate with the probability of a less number. This fact is not regarded as a detriment to the State or a

disparagement of the industry. On the contrary, it is indicative of a better condition, resulting from the change of methods. The withdrawal of cattle from the range has taken a great part of the business from the few and placed it in the hands of the many, and the great herds have been divided into smaller ones and thus distributed among the farms throughout the State, while vast areas of the public lands, which formerly embraced the wide possession of the cattle baron, have been settled upon by large communities of immigrant farmers who have combined the business of cattle raising with that of agriculture.

The movement is toward a combination of the agricultural and stock raising interests, similar in many respects to the methods of the Middle States. That is, the Colorado farmer, like the farmer of Missouri, Illinois, Indiana, Ohio and Kentucky, or like the farmer of any State in the Union of crowded population, has adopted the plan of a general farm. Formerly all the grain was taken to the market or the mill, and the grasses shipped in bales of hay to the centers of population. Now a great proportion of the cereals and the hay are kept upon the farm for the benefit of the domestic animals, which have been compelled to earn a precarious living by grazing upon the little brown tufts of buffalo grass. Under the present arrangement the farmer devotes a certain portion of his land to cereals, grasses and fruits; the rest is apportioned in pasture lands for his cattle, pigs, sheep and horses. His wheat finds a ready sale in the markets, but the greater part of his corn, oats and hay are fed to the stock in winter. By this method the farmers of Colorado have learned how to make a gratifying profit upon both their life stock and their agricultural products.

Under the new system there is a general movement toward the breeding of improved stock, and provision is made for the protection of the herds through the winter and for feeding during the months when the grazing grounds have ceased to yield succulent food.

Chief among the advantages which the farmers of Colorado have today in the successful raising of cattle and stock of all kinds, is the cultivation of alfalfa, the king of all hay-making clovers, and the finest feed in the world, whether in pasture or hay. This clover grows enormously in Colorado, and is eaten freely by all ruminating animals; it is more nutritious than any known grass or clover; is more prolific in its growth and yields a larger return to the farmer, whether fed to his stock or sold as hay, than any crop yet grown in the West.

This new element in agriculture has entered so largely into the live stock industry of the State that its cultivation will promote cattle growing in the future more than all other conditions combined. Wherever the land can be irrigated alfalfa can be grown abundantly, and wherever it is grown cattle can be increased and their quality improved.

Still another important change has taken place which promises great things for the future. The introduction at various times within the past ten years of imported breeds of cattle as a distinct branch of the business began with the settlement of farmers upon the more desirable ranges; but now, chiefly upon the stock and agricultural farms there has been a decided advance in

the reproduction of thoroughbred cattle by the importation of Devons, Herefords, Jerseys, Holsteins, Polled Angus, Galloways and a few Swiss and Ayklins. While there are many good results in the line of thoroughbred reproduction, it is the design of the cattle raisers to amalgamate by the admixture of finer blood with the native and the Texas animal. For this purpose the most successful cattlemen recommend a cross betwen the Short-Horn or the Polled Angus with the Texan, and it is claimed that the best possible product for profitable raising is the calf from a Short-Horn bull and a Texas cow.

In this connection, it is worthy of note that there is no encouragement in Colorado for the sale of bulls at fancy prices. In the course of reproduction for a series of years the cattlemen at home have reared a superior class of thoroughbred animals that rival the imported fancy stock, and are just as good for all practical purposes as the bulls of renowned pedigree and enormous prices. Such animals of native breed can easily be purchased in Colorado for $75 to $125 and, in some rare instances they are sold as high as $1,000.

To summarize the present advantages to the cattle grower, as compared with the range business of the past, there is immunity from loss by the rigors of winter, and the permanent establishment of the industry on a higher plane for the production of finer cattle, better beef and more profitable returns upon the capital and labor invested.

It must not be inferred that the change which is taking place with reference to cattle, threatens the imminent destruction of the range business; such a change will only come when the plain lands are generally taken up by actual settlement. There are many millions of acres of unclaimed Government lands, embracing the ranges on the eastern side of the mountains and many millions of acres on the western slope, where the great herds may roam and browse and fatten, increasing in numbers and enriching their owners for a generation to come. The cattle on the ranges are being improved from year to year by methods similar to those of the farmers. Pure bred, high grade bulls are turned loose upon the ranges, and the result is seen in the improvement in size and quality of the cattle.

For the benefit of those who may desire to enter into the cattle business of Colorado, there is this simple suggestion: Any person who can purchase a dozen head of cattle, can, in time, become the owner of a great herd. Some of the wealthiest cattle kings in Colorado, began as cowboys, having nothing in the start but cowboy's wages. With these wages they bought cattle from their employers, In the course of time by additional purchases and by breeding, their herds grew large in numbers and the owners became rich. These are among the many opportunities open at all times to new settlers.

## SHEEP AND WOOL.

Colorado possesses all the natural advantages desirable for sheep raising, and the conditions for their increase and improvement are similar in most respects to those which apply to cattle. In former years the flocks were maintained almost entirely upon the ranges, and, owing to the lack of grazing in winter, the business was hazardous and often attended with disaster. But now, all the dangers and disadvantages, except such as are everywhere usual, may be averted and there is no industry more safe and sure of remunerative returns than that of sheep and wool growing in Colorado.

The introduction of alfalfa as one of the staple crops, and the many improvements which have been made by the farmers favorable to the live stock interest, has brought great changes favorable to the sheep and wool growing business. Sheep can be raised in all parts of the State, and in herds without limit of numbers, but now with great alfalfa pastures and with provisions for feeding through excessively cold seasons, the tendency is toward smaller flocks and greater care in their keeping.

The most conservative estimates place the number of sheep in the State at from 2,500,000 to 3,000,000. The wool clip of the State for 1888 was over 9,000,000 pounds, all of which was sold in eastern markets. As with the cattle business, there is also a tendency to improved breeds of sheep, especially for the culture of a superior quality of wool. The animal best adapted to this purpose in Colorado, so far as experiments show, are the Spanish Merinos, bred from native Mexican ewes.

In past years, the best conducted flocks of sheep in Colorado have paid in wool and mutton, nearly twenty per cent. on the capital invested. It is now the opinion of experienced sheep raisers, that with the many additional advantages of improved farming, it will be possible to derive not less than thirty per cent. from the flocks. To bring about so great a result, it is prescribed that each flock be restricted in number to not more than 2,000 head, and if smaller, the better; that they have the freedom of the pastures occasionally during the warm seasons and that they be fed hay and corn for about sixty days in winter. If the winter is mild, less feeding would suffice. Except for the severe spells of winter weather, which do not often occur, there is no country in the world where sheep can take better care of themselves, for in these localities, where the greater number of flocks are kept, the grass of the hillsides and the lowlands is well preserved all the year round; the water is always pure and the climate is peculiarly adapted to this class of animal. It is well known that there is no sheep growing country which possesses so many advantages for cleanliness, and it is possible to raise a great herd of sheep either in the mountain valleys or out upon the plains, in so cleanly a manner, that when shearing time comes, the wool is found clean and white and free from burrs. All these things tend toward the perfect healthfulness of the animal, and with such a favorable sanitary condition the sheep must grow nearer to perfection, the mutton must be superior and the wool of a fine quality. In the time before it was not possi-

ble to give the sheep proper care, the wool was short and possessed almost a uniform value. Now, the tendency is to longer and softer fibre with graded values.

The average weight of a Colorado sheep is about 100 pounds, ranging from 75 to 125. The average clip per capita is 7 pounds. At present prices (17 cents), the clip per head is worth $1.19; after the clip, the sheep sold for mutton at 3 cents per pound live weight (100 pounds), will bring $3.00, making a total value of $4.19. Such results can be obtained with little cost for their keeping.

The statement is made that there is room for 25,000,000 sheep in Colorado, for two good reasons: *First*—They can be raised anywhere in the State where there is water and the territory is ample. *Second*—Because of the geographical situation of Colorado with reference to the wool industry. The official report for the past two years, show that the annual wool clip of the United States is about 100,000,000 pounds. The Rocky Mountain country, embracing Colorado, New Mexico, Wyoming, Arizona and Utah, produce nearly one-third of the entire amount. Colorado is in the center of this region and produces more than one-third of its wool.

As an industry for future development, every assurance can be given that it will be a profitable business for the new settler. It is only proper to add the suggestion that with all these advantages to the sheep growing industry, there is not a single woolen goods manufactory in Colorado, an enterprise that must inevitably come with the evolution of new industries in the future.

## THE HOG.

This animal has never been a favorite in Colorado except as he is seen hanging against the wall in the market stall, but he nevertheless continues to grow in popularity. The hog has not been cultivated for lack of mast and corn. But in recent years great plantations of corn have been raised and the great king of clovers, alfalfa, has been found to be superior to mast and equal to corn in its nutritious quality, with a perfect adaptation to the hog. Under such advantages as these, the farmers have begun to pay considerable attention to the raising of swine, and it is a very profitable business. It has been discovered that the soil, climate and general surroundings are exceedingly well adapted to swine culture. The happy results of his existence in Colorado clearly disproves the old time theory that a hog must have mud and filth to thrive. Here the water is clear and cold, and the ground uniformly dry and sandy. There is also a very small per cent. of decaying vegetable or animal matter. In almost all respects the pig is free from dirt and he must necessarily be given wholesome food. The results are that he is a cleanly, healthy animal, easy to raise, easy to fatten, and he makes a neat, sweet flavored porker. It was a very notable fact that many thousands of hogs were shipped into Colorado in 1888 for stocking purposes.

### HORSES.

In recent years it has been discovered that the climate of Colorado is exceedingly well adapted to horses, and that they could stand the rigors of winter upon the plains much better than cattle. Recent experiences prove that the State is finely adapted to the reproduction of the equine species, and a great deal of attention is now being paid to this branch of the live stock industry, both by the farmers and stockmen. Special attention is paid to the importation of large draught horses for breeding purposes, and these horses find a profitable market in Colorado. The breeding of thoroughbreds has also proved a successful enterprise, and there are a number of important stock farms in the State, while nearly every farmer has a more or less number of brood mares, some of them dividing their time equally between stock raising and farming. Five years ago the number of horses, except those used in the harness, was scarcely to be taken into account. Now they number 700,000 head. As is well known, some very excellent animals which have graced the turf during the past two or three years were natives of Colorado. The country is unexceptionally well adapted to horse raising, and it is destined to be one of the many great industries of the State.

## THE WORLD'S LARGEST COAL FIELDS.

NO statement can be made that will convey an adequate impression o the vast area of coal lands in the State, and if this area were accurately measured there would still remain the insoluble problem of the extent of the strata and quantity of coal. The supply is so enormous that there is no possibility of estimating or computing it. It may be accepted as a simple truth that no calculation that has ever been made in the endeavor to arrive at the truth has given an exaggerated total. Official geological surveys in the past six years give a coal-bearing strata of 30,000 square miles. In view of recent discoveries the State Inspector of Coal Mines declares the area to be not less than 40,000 square miles—over one-third of the entire area of the State.

Coal is found, not everywhere, but in every quarter of the State; from the foot-hills far out upon the plains to the east; in the middle counties of the mountains; in the hills and valleys of the western side of the range, and in the mountains and plains of the north and south.

The total production of coal in the State for the year 1888, as reported by the State Inspector of Coal Mines, was 2,185,477 tons of 2,000 pounds per ton.

Of the total production 700,574 tons were shipped to points in Texas, Kansas and Nebraska; the remainder being consumed, for the most part, in Colorado.

The first coal production in Colorado of which a record has been preserved was in 1873, when the output was 69,977 tons. In 1880 the production was only 375,000 tons.

COAL PRODUCTION BY COUNTIES—1888.

| COUNTIES. | TONS. |
|---|---|
| Las Animas | 706,455 |
| Fremont | 438,789 |
| Boulder | 315,155 |
| Gunnison | 258,374 |
| Huerfano | 159,610 |
| Garfield | 115,000 |
| La Plata | 33,625 |
| Pitkin | 28,113 |
| Weld | 28,054 |
| El Paso | 44,114 |
| Jefferson | 9,000 |
| Arapahoe | 1,700 |
| Park | 46,588 |
| Douglas | 400 |
| Mesa | 300 |
| Dolores | 200 |
| Total | 2,185,477 |

The average thickness of the coal seams now being worked throughout the State is 5 feet 5 inches; the thickest is 14 feet; and the thinest, 1 foot and 8 inches.

The average number of persons employed, is 5,375.

| | |
|---|---|
| Value of State's production for 1888 | $ 4,808,049 40 |
| Average value of coal on cars at the mines, per ton | 2 20 |
| Average price paid to miners, per ton | 70 |
| Average cost of producing coal, on the cars, at the mines, including royalty, per ton | 1 80 |
| *Price of coal in retail market, 1888, per ton, soft bituminous. | 4 25 |
| Anthracite, per ton, summer | 8 00 |
| Anthracite, per ton, winter | 9 25 |

SUMMARY OF COAL PRODUCTION FOR 16 YEARS.

| YEARS. | TONS. |
|---|---|
| 1873 | 69,977 |
| 1874 | 87,372 |
| 1875 | 98,838 |
| 1876 | 117,666 |
| 1877 | 160,000 |
| 1878 | 200,630 |
| 1879 | 322,732 |
| 1880 | 375,000 |
| 1881 | 706,744 |
| 1882 | 1,061,479 |
| 1883 | 1,229,593 |
| 1884 | 1,130,024 |
| 1885 | 1,398,796 |
| 1886 | 1,436,211 |
| 1887 | 1,791,735 |
| 1888 | 2,185,477 |

The large increase of production, as shown in the above table, particularly since 1880, corresponds with the general development of the State, and is due mainly to the increase of population, of new discoveries and the widespread growth of railway construction. The production during the past year

*Prices regulated by mining companies and railroad tariffs. Present prices of soft coal in Denver (1889), $3 per ton.

came from more than fifty mines. Of the total output, 44,791 tons were of anthracite for domestic use. The State abounds in the finest of coking coals and ranks as the fifth coke producer in the United States. Comparatively little of Colorado's vast coal fields is yet put into a productive state. But the advent of numerous railways and the great demand for coal in the prairie States east, and Texas on the south, must rapidly increase the production. With such a vast territory, and a supply so incalculable in its abundance, this industry alone will give employment to the people for unknown centuries to come, while it has now made available for the purposes of manufacture the great masses of iron, copper and lead which form so great a part of the mineral treasure in the Rocky Mountains.

## THE OIL FIELDS OF COLORADO.

COLORADO producess its own oil. Petroleum is found in many parts of the State. As a result of numerous explorations in recent years, it is claimed that there are many undeveloped oil fields in Colorado, while it is believed by some who have devoted much time to investigation in this direction that the area of oil is equal to that of the coal bearing strata. In corroboration of these theories, indications of oil appear at numerous points in the mountains and on the plains, while in such places the geological formations are favorable to abundant production. Thus far, there is only one well-developed oil field in the State. That there is this one only, is due to the fact that there has been no general or determined effort in this industry, other resources being more than sufficient to engage the attention and the capital of the limited population of the State. However, this single oil field is a great producer. It is situated at the town of Florence, in Fremont county, and embraces twenty-five large producing oil wells while others are in process of drilling. This petroleum field was discovered about seven years ago. Its product has steadily increased from the first and is sufficient to supply all of Colorado and many markets outside of the State with a fine quality of illuminating oil. The entire yield of these wells is refined at Florence. The product of the refineries is about forty per cent. of fine illuminant. From the residuum the lubricants are of standard value.

The following figures for 1888 are officially given as the basis of annual production from the twenty-five wells in operation.

| | BARRELS. |
|---|---|
| Crude oil | 300,000 |
| Refined oil | 140,000 |
| Greases | 160,000 |
| Highest yield of single well per day | 200 |
| Sold in Colorado (refined) | 70,000 |
| Shipped to other markets (refined) | 80,000 |
| Sold in Colorado (greases) | 87,000 |
| Shipped to other markets (greases) | 53,000 |

The Colorado oil is used almost exclusively in the State and it is retailed at twenty-five cents per gallon. The lubricants are extensively used for machine shops and rolling stock of railroads. The surplus refined oil is sold in Wyoming, New Mexico, Montana and Utah.

Fine locations of petroleum have recently been made in Huerfano, El Paso and Pueblo counties and the development work thus far gives promise of an abundant yield. In other parts of the State, "prospect" work is in progress and the oil industry is regarded as one of the great resources of the future in Colorado.

## COLORADO'S WEALTH IN BUILDING STONE.

THE commerce in building and other useful stones is enormous. Sandstones, lime and lava rock abound everywhere from the eastern foothills to the western slope of the Rocky Mountains. Quarries are numerous on every line of railway through the mountains. Marble and granite are found in many parts of the State, while the stone bodies are measureless and inexhaustible. In one quarry alone, at Colorado City, there is a solid body of red sandstone having 156,000,000 cubic feet in sight. Neither the owner of this quarry nor his generation can live long enough to make a conspicuous impression on this single bed of stone. Such bodies of stone can be numbered by the hundreds in the State, and there are scores of quarries in operation.

The stones are of nearly uniform strength and value and are classified as rubble, red sandstone, gray sandstone, pink sandstone, light sandstone, light yellow sandstone, lime rock, lava rock, white, pink and variegated marble and granite of various hues. Marble is found in large bodies in a few places, while the granite bodies are boundless but not extensively developed.

These building stones are used in Colorado to the exclusion of all other stones and are coming into great demand all over the country. The solidity of the stones and their beautiful colors make them desirable everywhere, and their transportation has become an important part of railroad traffic. The stone buildings of Colorado cities are uniformly unique and beautiful. Large shipments are made to all principal points between Colorado and the Mississippi river; south to Texas, and to all the Territories adjoining Colorado.

The rapid growth of building in the State, together with the increased demand abroad is daily widening the scope of the stone business, which is already an industry of great proportions, giving maintenance to thousands of people in the State. The wages of quarrymen range from $2.50 to $3.00 per day. The price of stone is 60 cents per cubic foot on the car at Colorado points, and about 80 cents per cubic foot, including freight, when hauled to Missouri river points.

## FORESTRY.

THE woodlands of Colorado are not confined entirely to the mountain regions. The timber lands comprise 10,630,000 acres, and the more useful timbers grow in scattered areas along the mountain sides, in the valleys, on the plains, and upon the high, rolling plateaus throughout the several ranges of the State. A spur of the Rocky Mountains, known in Colorado as the north and south divide, or the Arkansas-Platte divide, which extends 30 miles into the mid-eastern part of the State, is covered with pine, and another timbered tract extends for a short distance into Las Animas county on the southeast. Some of the best timbers are found in the south-western part of the State, in La Plata and Archuleta counties, while some of the largest forests exist in the northern portion of the State. There is also considerable timber in south-eastern Colorado, notably Baca county, where lumbering is made a separate industry and means of livelihood.

The most useful timbers for general purposes, are the yellow and white pine and the white spruce (called in Colorado the Red spruce). This timber is superior to the pines but not so plentiful, and growing at higher altitudes, is not so accessible. White and yellow pines are the predominant species and are used extensively in building. These form the principal native building lumbers and enter largely into all kinds of construction. While a large proportion of the wooden houses in the smaller towns of Colorado, are built entirely of these timbers, their special uses are for the frame work of all kinds of building, and it enters largely into the construction of brick and stone buildings in the larger cities. Piñon, which grows promiscuously, is largely used for fuel and the production of charcoal. Cottonwoods, oaks, cherries and other timbers of small growth and little value, occupy the borders of the small streams. Large areas on the high mountains, are covered exclusively with the quaking aspen, which has a dense growth, and which generally replaces the coniferous trees where they have been destroyed by fire. The small lodge-pole pine occupies a similar place in the forestry of Colorado. Small stunted junipers cover the high plateaus of southwestern Colorado.

The foot-hills supply an abundance of small scrubby timbers which are used for fuel and fencing material. The lower mountain slopes and the south-eastern part of the State furnish coarse lumber suitable for railroad ties, for fuel and for mining purposes. Owing to fires, snow slides, wasteful methods of lumbering, and the enormous draft upon the forests by the railroads and mining industry, these timbers have been almost entirely consumed, together with a large proportion of the more valuable forests.

Forest fires are very frequent and destructive in Colorado. In 1880 the estimated loss of forests by fires was 113,820 acres. Since that time there have been many large fires in the mountains, while the draft upon the forests from all the sources named has almost denuded the eastern slope, which is among other evils, greatly to the detriment of the water supply, especially to the streams on the eastern side.

The lumber cut from the Colorado forests in 1887, when sawed and prepared for use, is estimated at 75,000,000 feet; in 1888, 100,000,000 feet; and in 1889 a much larger figure is estimated. This great increase is attributable mainly to the renewed activity in mining and the enormous growth of building during the past two years. Of the 100,000,000 feet cut in 1888 it is estimated by builders that 50,000,000 feet were used in the new buildings of Denver alone.

Of the evergreens in these mountain forests, twenty-one varieties have been counted. Many of the choice varieties have a home market and some of them are sold in Eastern States for ornamental purposes. The favorite varieties of evergreens are the steel blue, red and Engleman spruces, the blue, red and white cedars and junipers. Among the native pines that may be mentioned are the yellow and pondorosa varieties, popularly used for decorating lawns. Of other trees that grow in Colorado, chiefly as transplants, are the cottonwood, elm, honey locust, cut-leaf birch, cut-leaf maple, pimple-leaf elm, lansel-leaf willow, the Norway sugar maple, the catalpa, the kempreri, the linden, the mountain ash, the balm of Gilead, the buffalo berry, the weeping willow, the black cherry and red oak.

## COLORADO'S GREAT RAILWAYS.

NO evidence of advancement in Colorado could be more surprising to people abroad who are uninformed on the subject than the great development of railway systems throughout the State. These lines of steel form a net work over the plains and thread the mountain passes in almost every accessible place, pushing their way over lofty mountain peaks and leading on to every industrial settlement, connecting the remotest points of the State with all the main lines of travel in the Union and thus with the markets of the world. Colorado has eight main lines of railway, which, with their many branches, aggregate a total trackage of 4,329 miles.

These railroads in the successive order of their construction are: The Union Pacific, with 1,272 miles; the Denver and Rio Grande, with 1,316 miles; the Atchison, Topeka and Santa Fe, 413 miles; the Denver, Texas and Fort Worth, 231 miles; the Burlington and Missouri, 400 miles; the Colorado Midland, 252 miles; the Missouri Pacific, 175 miles; the Rock Island, 168 miles.

Three extensions of the Union Pacific railway terminate at Denver, namely: The Denver Pacific branch, connecting with the transcontinental line at Cheyenne; the Julesburg branch, or the Omaha and Denver short line, and the Kansas Pacific division of the Union Pacific, from Kansas City to Denver. The branches of this road in the State are the Denver and South Park to Leadville, with an extension to Gunnison City; the Colorado Central, narrow gauge, to the mining districts of Georgetown, Idaho

Springs, Black Hawk and Central; the Colorado Central, broad guage, through the agricultural and coal regions of Northern Colorado, and the Morrison branch to Morrison.

The Burlington and Missouri railway passes from Denver through the north-eastern portion of Colorado, and thence into Nebraska and Kansas, where it connects with the leading eastern trunk lines dividing traffic with the Union Pacific and the other east and west trunk terminating lines in Colorado. It has one branch in the State, the Denver, Utah and Pacific from Denver to Lyons, a distance of 45 miles, where are located the extensive stone quarries producing the finest flagging and paving stone in the State. The 400 miles of this system includes the newly constructed road to Cheyenne, through the rich rain-belt counties of Sedgwick, Phillips, Logan and Weld.

The Atchison, Topeka and Santa Fé railway enters Colorado in the southeastern part of the State, its southern extension branching off at La Junta and connecting with the Atlantic and Pacific at Albuquerque, New Mexico. The main line continues westward to Pueblo and thence to Denver. It is an important link of communication between Colorado and the markets of the East and West.

The Rock Island railway enters the eastern side of the State, passes through a fertile country and terminates at Colorado Springs, its trains reaching Denver over the Denver and Rio Grande from that point.

The Missouri Pacific, from St. Louis and Kansas City, terminates at Pueblo, its trains running to Denver via the Denver and Rio Grande railway.

The Denver, Texas and Fort Worth railway connects with the Fort Worth and Denver City railway at Trinidad, Colorado, and thence southward it is one road under the name of the Denver, Texas and Fort Worth till it reaches Fort Worth, Texas, where it connects with the main lines of railway leading to the seaport cities on the Gulf of Mexico, and to all points of the extreme south, via New Orleans, giving direct communication between the latter city and Denver. The establishment of this line of traffic and travel in the spring of 1888, was esteemed by the people of Colorado, as among the greatest of railway benefits, as it established a southern outlet for Colorado products and gave easy access to the markets of the Southern ports.

The Colorado Midland railway is a local enterprise. Starting from Colorado Springs westward, coursing its way through the rugged mountains, passing under the brow of the famous Pike's Peak, thence running westward to Leadville and Aspen, it crosses the Continental Divide and drops down into the great coal fields of Garfield county, of which Glenwood Springs is the capital. Its traffic is confined mainly to the coal and mineral mining industries of the sections above named.

The Denver and Rio Grande railway is in every essential a Colorado enterprise, and Colorado is indebted to it for a great part of its prosperity. It has been the aim of this railway to reach all the mining districts and other centers of industry within the field of its operations. From its main line,

north and south, it has deflected to the west and south-west with its numerous branches until it has extended itself like a fan over these portions of the State. The northern extremity of the Rio Grande is Denver, and the southern, Santa Fé, New Mexico. Westward, it extends via Salt Lake to Ogden, where it connects with the great railway lines of the Pacific Slope. By its various extensions its main stem is connected with Leadville, Glenwood Springs and Aspen, Gunnison, Grand Junction and Ouray, Alamosa, Durango and Silverton, and many other representative towns in the agricultural and coal and mineral mining regions of the State. It is famous, as is also the Union Pacific, for the grandeur of its mountain scenery and marvelous skillfulness of construction through the difficult defiles of the Rocky Mountains.

Trace the lines of all these railroads, and as they lead from Denver, the common center, to all points of the compass and it will be seen that Colorado is amply provided with railway facilities, having connection with all the lines of railway in the United States, and placing Colorado in easy communication with all the great markets of the nations of the world.

## FRUIT CULTURE.

IT is scarcely known at home; it will be an incredible statement abroad that Colorado is a great fruit growing State; a close rival of California in many orchard products, and excelling that state in the excellence of flavor and keeping qualities. Most varieties of fruit indigenous to the temperate zone is successfully grown in Colorado. Hitherto general fruit growing in Colorado has been regarded as an experiment rather than a distinctive industry. But for many years certain varieties have had a luxurious growth. Recent developments have given a surprise to Colorado people, which, no doubt, will only be equalled to the incredulity of the people, both east and west, concerning this new source of wealth to the State. The Colorado farmer is the only person who complacently views the situation as a plain matter of fact, and he is only reasonably enthusiastic. He has patiently waited for his orchards to grow and his vineyards to mature. There are thousands of orchards in Colorado and they have trees bearing all manner of fruit. The pear and peach have not yet as luscious a development as the California fruit, but they are fine and plentiful, still in the process of development. The apple, for luxurious growth and flavor, is without a superior in any State. The apple has been cultivated successfully for the past twenty-four years, and the number of trees now planted is about half a million. The area of its culture extends from the extreme north to the south along the line of the eastern watershed of the Rocky Mountains, in all localities where irrigating water is available, and at an altitude of 6,000 feet, and in some instances in the mountain valleys at even a higher altitude, with protected surroundings.

The oldest plantation of orchards is twenty-four years of age. The largest bearing orchard in the State comprises 3,000 trees, which in 1888 produced 15,000 bushels, worth about one dollar per bushel. There are no meteorological causes to produce failure of crops that usually obtain in all States East. All varieties of apples that are usually grown in apple regions are successful in Colorado. Colorado may be emphatically styled as good an apple region as any other State in the Union, when properly cared for. Pear trees, when of mature age, bear successful crops of the several varieties. Peaches are not a general success on the eastern side of the Rocky Mountain range, but may be successfully cultivated on the western.

Grapes grow in all varieties. They grow in the mountains and upon the plains. The soil, climate and physical configuration of the country is peculiarly adapted to their culture. Vintage is destined to be one of the great industries of the future. The heavy seeded grapes predominate and the Concord is one of the chief favorites. The fruit is of high flavor and is a superior wine maker. All the fruits of Colorado have the special merit of superior flavor and sweetness. In this respect the apples are remarkable. All fruits grow abundant and their culture has been everywhere successful, except far out upon the plains. All fruits, including peaches and other stone fruits, grow luxuriantly on the western side of the mountains. In Arapahoe, El Paso, Pueblo, Bent, Boulder, Larimer, Jefferson and Weld counties, on the plains east of the mountains; in Fremont county, which is in the midst of the mountains in the middle of the State, and in Delta, Mesa and Montrose counties on the western slope, extensive orchards have been planted within the past five years. In some of the eastern counties large farms have been converted into orchards. These orchards range in the number of trees from 1,000 to 3,000, while in Boulder county there is one farm of thirty-five acres, including all varieties of fruits. In Fremont, the banner fruit county, one grower alone has one hundred varieties of apples, all of which grow finely. On the western side of the mountains, where fruit culture, as well as all kinds of farming is in its infancy, all kinds of stone fruit grow abundantly. This is especially the peach growing section of the State, and this fruit is so prolific that often the trees can not bear the weight of their abundant yield. There is one orchard in Mesa county having 12,000 peach trees alone.

Grapes everywhere grow well and only the California varieties need winter protection. The best production of grape is in the middle, mountainous part, of which Fremont county is the representative. Of what is known as the native varieties, the Concord is the most extensively grown, but the Hartford prolific, Moore's Early Brighton, Pocklington, Vergennese, Walter, Catawba, Prentiss, Duchess, Lindley, Elvira, Worden, Salem, Iona, Agawam, August Giant, Early Victor, Jefferson, Niagara and other varieties are successfully grown. With winter protection most of the California varieties grow profusely and to perfection. Though the apple is conceded to be the queen of fruits in Colorado, the grape is entitled to an equally important place in horticulture.

Fruit tree planting is progressing at an enormous rate in Colorado. The crops are never-failing and the business is profitable. It is, in fact,

becoming a great industry with boundless opportunities for all who may wish to engage in it. In 1888, the number of fruit trees planted in Colorado was 200,000; the yield of apples was 60,000 bushels, and the largest yield from a single orchard of 2,000 apple trees was 15,000 bushels. The yield of the current year will largely exceed that of the past.

Of the small fruits in Colorado, strawberries, raspberries, blackberries, gooseberries and currants are most prolific. For size, sweetness, excellence of flavor and abundance of growth, the strawberry is not surpassed anywhere in the world, and everywhere in the State, even up to the edge of the eternal snow peaks in the mountains the soil is productive of them. They grow on the highest mountains and in the lowest valleys. A yield of 3,000 to 6,000 quarts per acre is not unusual. It is easy for any person possessing a farm or a garden, or even a spare corner of his yard in the town or city, to raise his own supply of strawberries, with a surplus for the market. During the present year, one gardener in the suburbs of Denver cleared a profit of $700 off his crop of strawberries planted on three-quarters of an acre. Gooseberries are grown in Colorado as large as plums and they are of superior flavor. Blackberries are extensively cultivated and they reach a size and lusciousness that would be amazing to the people of Eastern States who have seen this fruit only in its wild state; but to be successful, the berry requires slight covering in the winter.

Plums in all variety have been raised the current season, where trees of proper age have been planted. This fruit has not been heretofore considered successful, but the present crop was prolific and fine in quality.

Of all plant fruits the watermelon of Colorado is the most delicious, and it is an unfailing crop of abundant yield. The culture of the watermelon has become a great money-making business, and the Colorado melon will soon have the prestige in the West, which belongs to the Georgia melon in the South, the former having the superior merit of being sweeter and capable of longer preservation. Certain sections of the State are peculiarly adapted to its culture. In Otero, Bent and Prowers counties along the valley of the Arkansas river, is a great stretch of country which not longer than five years ago was a sterile, sandy waste, parched and blistered under the sun, with scarcely sufficient grass in the midst of the sand to graze the scattered herds. Now this entire section is converted into rich farming lands with a populous and thriving community, and the great crop of the country is watermelons. The town of Rocky Ford is the center of population and the chief watermelon market, and so great is the yield and so splendid the melons that all parts of the State draw upon this section for their supply, notwithstanding the watermelon is everywhere a standard field crop.

## CLIMATE AND HEALTH.

ONE of the greatest attractions possessed by Colorado is the healthful climate. This means its pure air, its brilliant sunshine and its agreeable weather all the year round. The most reliable medical authorities in the world give abundant and indisputable reasons why high altitudes with a dry atmosphere are the healthiest places for residence. In all countries disease is most prevalent where there is an excess of moisture and decaying vegetation. The conditions in Colorado are precisely the opposite, the air being perpetually dry, with little decaying vegetation except that of the farms. That the climate of Colorado is especially efficacious in the arrest and cure of pulmonary diseases is well known to the world, and there may be found thousands of people in the State who can testify to this fact by their happy experiences. There are a great number of people who came to Colorado a few years ago poor and broken down in health, and who are now strong, active and prosperous in business. The immediate hygienic influences of the altitude, the atmosphere and the surroundings upon the invalid are given by one of the most active and intelligent of Colorado's physicians as follows:

"There is a sufficient altitude to cause lung and chest development by the increased respiration, which becomes necessary; there is the dry, exhilerating mountain air, with the absence of malaria; there is the tonic effect of a bracing climate, without its rigors; an atmosphere filled with ozone; cool nights in summer; a bright, sunny sky almost every day in the year, conducive of cheerfulness and bringing a new pleasure every morning. It naturally follows from these conditions that both mind and body are constantly stimulated in their functions."

Health resorts are numerous in the State. Colorado is one vast health resort in itself. But there are numerous designated places in the mountains where accommodations of a splendid character have been prepared for the entertainment of the invalid and the pleasure of the tourist. The waters have a curative value equal to the most famous mineral springs in the world.

The pocket diary of a well known citizen of Denver, who was cured of asthma by a residence of a few years, showed a record of only thirty-three days in twelve years in which the sun was not visible in the twenty-four hours. This record is an important and leading factor, which, besides carrying with it all the peculiar attributes to be ascribed to a pure atmosphere, presents a most important fact, which is not overlooked by the medical profession—the curative influence of atmospheric electricity. It is affirmed that the increased electrical influence of high altitude atmosphere is one of the most valuable aids in the battle against consumption. With a clear sky the electricity of the air is always positive. Continued mediumship of the human body between the positive air and the negative earth is a constant renewal of vitality. For this reason, camping out and "roughing it" as much as possible in dry and elevated countries is advised.

The places of best advantage in seeking health are the cities and towns on the plains and the watering places of the mountains. Invalids should not go the mountains until after they have spent some weeks on the plains. In many instances the plains are preferable for a permanent residence.

The beneficial effect of Colorado climate upon consumptives is best illustrated by the results in 202 cases under the care of one of Denver's most eminent physicians, within a period of five years, all the persons having come to Colorado while the disease was in progress. These are classified as follows: First stage (deposit), 75; second stage (softening), 42; third stage (excavation), 85. The first stage cases averaged one year and eight months sickness before coming. Results: Much improved, 64; slight improvement, 10; advance of disease 1. Second stage: One year and five months before coming. Average: Much improved, 16; slightly improved, 12; favorable resistance to disease, 6; advance of disease, 8; now known to be in State, 26. Third stage: These cases averaged two years and eight months sickness before coming, and one year and eight months residence in the State. Result: Much improved, 15; slightly improved, 22; favorable resistance, 17; extension and advance, 31.

That the climate is in itself a preventive of phthisis is evidenced by the fact that consumption does not originate here. The few cases said to have originated in Colorado can almost always be found to have been inherited or brought in incipiency from the East or the lower altitudes of the West.

It should not be inferred because its principal virtue is the healing of lung disease that Colorado climate is only beneficial to such afflicted people. People come from all parts of the world with broken constitutions and soon recover. These include men and women with shattered nervous systems, dyspeptics, rheumatics, paralytics, extreme biliousness, malarial poisoning, liver and kidney diseases and a host of kindred ailments. A large per cent. of these are restored to health and it is rarely that anyone is not improved.

In respect to the weather in Colorado, there are some strange and very erroneous impressions. With those who have never visited the State and who seem to regard Colorado as a next-door neighbor to the more frigid regions of the northwest, the impression prevails that it is a severely cold, stormy, and generally disagreeable country. The inquiries which are received from all parts upon this subject are often made in the form of objections. "It is so terribly cold out there," they say. "You have no rains in Colorado." "It is so awfully dusty," and "The wind blows every day."

No, it is not terribly cold. The winters are most delightful. In all the temperate zone there is no country where the weather is more equable, with a greater average of mildness, than in Colorado. In many States of the Union there are virtually but two seasons in the year—summer and winter. In Colorado, the four seasons are marked with regularity of time and conditions of weather. With an occasional exception, the year rolls around its season as follows:

Winter begins with the ending of a most delightful autumn, about the middle of December. The first cold days may come occasionally in November and December. But they are not uncomfortably cold days and the

change is brief. The first cold spell usually comes about the eighth or fifteenth of January. Usually, there are only two or three of such "spells" during the winter. Their average duration is a week. They have lasted two weeks, oftener only four days at a time. During such periods the mercury seldom reaches zero in the day and occasionally falls to ten or fifteen below at night, but zero would be a fair average for the coldest period of three or four days. The average maximum temperature for January is about sixty degrees; for February, sixty. The average minimum temperature for January is about fifteen degrees below zero, the lowest record in seventeen years being twenty-nine degrees, in one year only. For February, the average minimum is about ten degrees below. The maximum temperature prevails for two-thirds of the entire season, frequently, one of the two months is "open" weather throughout, and even a whole winter has passed with almost daily sunshine, a high temperature and a delightful atmosphere that does not require heavy wraps for either man or woman.

The spring is generally mild and moist, with only such changes as are common in Eastern States. This is the season when the greater amount of snow falls. Later in the spring and early in the summer the rains begin. It rains frequently and the showers are copious. As to the freaks of weather throughout the year, the wind blows only as it blows in other countries, only at intervals, sometimes of many days. The light breezes are generous and refreshing. The dry wind-storms come in their due season, bringing a cloud of dust which is disagreeable as a matter of course; but these storms have their period. They serve as one of Nature's great sanitary measures, and their effect is beneficial and refreshing. Neither cyclones or sunstrokes ever occur in Colorado.

The summers are seldom excessively warm. July is the only hot month when the maximum temperature will average ninety degrees, and the minimum fifty. The sun shines bright and hot; but is delightful everywhere in the shade. During the midsummer refreshing showers come frequently, and the nights are always deliciously cool, inducing rest and sleep.

No country in the world can excel the bright, genial, sunny weather of a Colorado autumn. It is full worth a trip across the continent, and a sojourn of a month to breathe the delicious air and bathe in the glorious sunshine of the autumn days in Colorado. For the most part it is warm; but seldom too warm or too cool for comfort, and the mild pure atmosphere prevails uninterruptedly through the season, which does not end till near the close of the year.

Among the natural resources of Colorado are the numerous mineral springs which abound throughout the State. The waters from these springs have more than a local reputation, many of them being shipped to points not only within the State but to adjacent States and Territories. These springs are found at Manitou, Pueblo, Leadville, Glenwood Springs, Idaho Springs in the southern portion of the State, and in Chaffee, Grand, Park and Boulder counties and other localities, and the waters, which are both hot and cold, have a national reputation for their medicinal properties. It is, in fine, only a question of time that Colorado, from this source alone, will achieve the position of being a State noted for its health resorts and people will flock here from all parts to receive the benefits of the life-giving waters with which the State has been so freely endowed.

## THE SCHOOL SYSTEM.

IF there is one department of social government in Colorado which excels all others it is that of her public school system. Nothing truthful can be said concerning her educational advantages without seeming extravagance. The excellence of her schools are of national reputation and they stand unrivaled in the United States. Wherever a settlement is made in Colorado there is a unanimity of sentiment in the purpose of educating the young in the most excellent and thorough manner. There are two features which especially bespeak the liberality of Colorado's educational advantages. These are the splendid character of the school buildings and the thorough accomplishment of the teachers selected for every department of training.

The organization and system of the public schools are as follows: Officers—State Superintendent of Public Instruction, State Board of Education, County Superintendent and District Boards. System—Ungraded district schools, town and city graded schools and high school courses. Associations—Local institutes, State Teachers' Association, County Teachers' Associations. The school age is between 6 and 21 years.

The State institutions are: The State University, at Boulder; the State School of Mines, at Golden; the Agricultural College, at Fort Collins; the State Industrial School at, Golden; and the Mute and Blind Institute, at Colorado Springs. The departments of study at these several institutions are as follows:

State University—Preparatory, Normal, Classic, Scientific and Medical.

State Agricultural College—Agriculture, Horticulture, Mechanics and Drawing, Mathematics and Military Science, Modern Language, Chemistry and Geology, Physics and Engineering, Veterinary Science and Zoology.

State School of Mines—Metallurgy.

Institute for the Mute and Blind—Teaching the blind in Reading, Mathematics and Music; the deaf in reading the lips, and the signs, and in acquiring hearing by the application of modern scientific instruments, etc.

The State Industrial School, at Golden, is an institution for the education and industrial training of refractory and uncared for boys and girls.

The report of the State Superintendent of Public Schools for 1888 gave the following flattering statistics: Number of school districts, 990; number of school houses, 820; number of children of school age, 76,212; number of pupils enrolled, 50,745; value of school property, $3,238,021; balance of school fund to the credit of the State, $601,192. The wages of teachers are $35 to $50 in ungraded, and $50 to $150 in graded schools.

The last Legislature of Colorado enacted an excellent law, by which school districts are permitted to purchase and own their text books for the use of all the children. Also, each school district may levy a tax of one-tenth mill for the purpose of establishing libraries. Many of the schools

of towns and cities are provided with good libraries for the free use of the children and this has become one of the best methods of a liberal education.

The per capita tax for school purposes is exceedingly small. The State owns about 3,000,000 acres of school lands, from which there is an annual income by sales and leases, and this income is adequate for current expenses. Hence, there is nothing lacking in the matter of finances to meet every requirement of the present and to anticipate the necessities of the future.

## WOOLEN MILLS FOR COLORADO.

THERE are many reasons why woolen mills could be established and profitably conducted in Colorado. The official report for 1888 places the wool clip in the United States at about 100,000,000 pounds. Of this amount Colorado produced one-tenth, or near 10,000,000 pounds. For New Mexico the clip was approximately 7,000,000 pounds; Arizona, 3,000,000; Southern Utah, 3,000,000, and Wyoming, 4,000,000. Thus it is shown that the Rocky Mountain country produces 27,000,000 pounds, or more than one-fourth of all the wool grown in the United States. Within this section of the Rocky Mountain region there are one million consumers of woolen goods, and Colorado, by reason of its situation and accessibility, is the natural center of this trade.

The use of woolen goods in this section of the country is probably greater than in the East, for various and obvious reasons. The climate here is equable, and hot weather, as the term is understood in the East, is rare and almost unknown. Many of the mining operations are conducted at or very near the timber line, which means at a point where an absolute thaw never occurs, and only that vegetation the roots of which penetrate to a small depth can thrive. Naturally winter clothing is worn all the time, and the heavy underwear of the miner is not changed in the summer. To supply this large home demand, therefore, immense sums are annually expended, which should inure to the benefit of a home industry of this kind. Underwear, blankets, socks and cloths of certain kinds could be manufactured here as well as in any other place on earth.

An establishment like that proposed should include every process of scouring, twisting, weaving and knitting the wool, and could surely undersell eastern manufacturers in its products. But not the miner alone, every inhabitant of Colorado is a consumer of such woolen fabrics as can be made at home, and as it has all the requisites of production, it can also become the manufacturer and the market for the Rocky Mountain region.

## HOW TO MAKE MONEY.

THIS is the great universal question which actuates the world to all its industrial achievements. It is the problem which prompted the early settlers of Colorado to make long, weary and dangerous journeys across the plains twenty and thirty years ago. It is the purpose which now brings the incoming thousands as fast as the engines of quick-transit railroads can transport them. If such people need advice as to the methods of making money, we would say to the man of capital to invest it in the properties of increasing values or start some kind of business. The growing requirements of a large immigration to a new country will assure the prosperity of any kind of legitimate business where the merchant or the manufacturer can present useful goods to the people. Should the fancy of the newcomer turn in that direction, we would say that there are means of ascertaining how and where safe and profitable investments can be made in mining. If he is without money, there is but one way for him to succeed, and that is to pull off his coat and go to work at the first thing that will pay him a day's wages, and then for the rest, frugality, temperance and close application, with the eye ever open for opportunities.

The inequalities of poverty and wealth that are universal, prevail in Colorado, with the exception only that these inequalities exist in less proportion. The laborer and artisan should not be discouraged in his desire to come West, but every workingman, especially if he have a family dependent upon him, should have a thorough understanding of the industrial situation before he decides to leave his old home. This is a country of development. Its progress is marvelous. But however promising it may be, the universal law of supply and demand regulates the condition of labor here as elsewhere. It is not desirable that either labor or capital should come singly to Colorado. To the latter the advantages in Colorado have been fully set forth, and if it avail itself of the great opportunity offered, labor will naturally come with it hand in hand. It is not advisable, however, that the indigent man come to Colorado, however industrious he may be, unless he has some settled plan of livelihood or a trade or vocation that will insure ready employment. But the resources of wealth in Colorado present abundant opportunity to the poor man who comes prepared to take an active part in the general development. The prospect is always open to the man who can engage in a substantial way in any productive enterprise within the scope of Colorado's numerous industries.

# WAGES AND COST OF LIVING.

The following figures are obtained by averaging the wages as given in the employer's and the employé's blanks received at the office of the Bureau of Labor Statistics from the several counties in the State, compiled by the Deputy Commissioner of Labor:

| OCCUPATION | AVERAGE WAGES | | HOURS—DAY | |
|---|---|---|---|---|
| | Denver | Outside Denver | Denver | Outside Denver |
| Awningmakers | | $2 50 | 10 | |
| Blacksmiths | $3 00 to 4 00 | $3 25 | 10 | 10 |
| Blacksmith's help | 2 25 to 2 50 | 2 62 | 10 | 10 |
| Boilermakers | 3 00 to 3 50 | | 10 | |
| Boilermakers' help | | 2 50 | 10 | |
| Bookbinders | | 3 00 | 10 | |
| *Boot-shoemakers | 2 50 to 3 25 | 2 53 | 10 | 10 |
| Brick burners | | 4 50 | | |
| Brickmakers | | 3 50 | 3 00 | |
| Bricklayers | 5 00 to 6 00 | 4 96 | 8 | 10 |
| *Broommakers | 2 25 to 3 00 | 2 50 | 10 | 10 |
| Cabinetmakers | 2 50 to 3 50 | | 10 | |
| Candymakers | | 3 00 | 10 | |
| Carpenters | 3 00 to 4 00 | 3 22 | 9 | 9 |
| Carriage-wagonmakers | 2 50 to 3 00 | 2 89 | 9 | 10 |
| Carriage painters | 2 50 to 3 00 | 3 25 | 10 | 10 |
| Carriage trimmers | 2 50 to 3 00 | | 10 | 10 |
| *Cigarmakers | 2 00 to 3 50 | | 8 | 10 |
| Engineers (stationary) | 2 00 to 3 50 | 3 75 | | † |
| Grainers | 4 00 to 6 00 | | 10 | |
| Harnessmakers | 2 25 to 3 00 | 2 60 | 10 | 10 |
| Hatters | 1 75 to 2 50 | | 10 | |
| Hodcarriers (brick) | 2 75 to 3 00 | | 8 | |
| Hodcarriers (mortar) | 2 50 to 3 00 | | 8 | |
| Laborers | 1 50 to 2 00 | 2 23 | 10 | 10 |
| Lead pipe makers | | 3 50 | 10 | |
| Laundrymen | 1 75 to 2 25 | 1 75 | 10 | 10 |
| Macaroni factory men | | 1 75 | 10 | |
| Machinists | 2 50 to 3 50 | 3 58 | 10 | 10 |
| Marble cutters | 3 00 to 3 50 | | 10 | |
| Marble polishers | | 2 50 | 10 | |
| *Mattress makers | | 2 50 | 10 | |
| Moulders (brass) | | 3 25 | | |
| Moulders (iron) | | 3 25 | 3 25 | |
| Painters | 2 50 to 3 00 | 3 17 | 9 | 10 |
| Paperhangers | 2 50 to 3 00 | 3 41 | 9 | 10 |
| Pipe fitters | | 3 00 | 3 07 | 10 | 10 |
| Plasterers | 3 50 to 4 00 | 4 00 | 8 | 9&10 |
| Plumbers | | 3 50 | 3 91 | 9 | 9&10 |
| Soapmakers | | 1 75 | 10 | |
| Stair builders | | 3 00 | 9 | |
| Stonecutters | 4 00 to 4 75 | 4 15 | 8 | 9&10 |
| Stonemasons | 4 00 to 4 50 | | 8 | 9&10 |
| Street car drivers | | 2 00 | 12 | |
| *Tailors | | 3 50 | 3 75 | 10 | 10 |
| Teamsters | | 1 50 | 1 50 | 10 | 10 |
| Tinsmiths | 3 00 to 3 75 | 2 75 | 9 | 10 |
| *Upholsterers | 2 50 to 3 00 | | 10 | |

* NOTE.—Persons employed in these occupations are paid by the piece. † Uncertain.

TABLE OF WEEKLY WAGES.

Weekly wages paid to men, also the number of hours employed in the following occupations, in the State:

| OCCUPATION | AVERAGE WAGES | | Hours per day | Days per week |
|---|---|---|---|---|
| | Denver | Outside Denver | | |
| Barbers | $12 to 20 | $16 55 | 12 | 7 |
| Bartenders | 12 to 28 | .... | 14 | 7 |
| Bookkeepers | 12 to 35 | .... | 8 to 10 | 6 |
| Brewers | 15 to 16 | .... | 10 | 6 |
| *Butchers | 15 to 30 | 15 00 | 14 | 7 |
| Car drivers (street) | 14 | .... | 12 | 7 |
| Clerks | 5 to 25 | .... | 9 to 13 | 6 |
| *Cooks | 6 to 25 | .... | 12 | 7 |
| Hack drivers | 12 to 20 | .... | unc't'n | .. |
| Porters and janitors | 12 to 18 | .... | 12 | .. |
| Printers | 20 | 16 62 | 9 | 6 |
| Typewriters | 10 to 20 | .... | 7 | 6 |
| *Waiters | 6 to 10 | .... | 12 | 7 |

* NOTE.—Persons employed in these occupations receive board in addition to their money wages.

Wages paid to the employés in the mining and smelting industries of the State, averaged from returns received from twelve counties:

| Occupation— | Wages per day |
|---|---|
| Blacksmiths | $3 70 |
| Blacksmith helpers | 3 00 |
| Carpenters | 3 56 |
| Engineers | 3 84 |
| Feeders | 2 75 |
| Firemen | 3 50 |
| Laborers | 2 60 |
| Masons | 5 00 |
| Miners | 3 02 |
| Ore sorters | 2 86 |
| Pumpmen | 5 65 |
| Roasters | 3 25 |
| Roasters' helpers | 2 79 |
| Smelters | 3 00 |
| Smelter helpers | 2 62 |
| Special laborers | 3 15 |
| Wheelers | 2 50 |
| Machinists | 4 50 |

The average of coal miners' wages per week is $16.00, varying in different localities from $14 to $20.

In large numbers, throughout the State, females fill the places of clerks in all kinds of stores, waitresses in hotels and restaurants, type-writers, governesses, cooks, housemaids and general servant girls. Female clerks receive from $6 to $20 per week in dry goods stores, averaging about $10; servant girls are paid from $12 to $25 per month, averaging about $18. Any good English-speaking, general house-work girl can obtain $20 per month and her board and lodging.

The ample facilities afforded by the railways and the great increase of recent years in the home supply from agriculture, manufactures and other

sources, have rendered the matter of living in Colorado a problem of no greater difficulty than in the Eastern States. There is a little more cost for the daily market basket, but this difference is compensated for in the fact that the average rate of wages is higher. A family of five persons living in the cities, if they are economical, can supply the table for from $10 to $12 a week, and $18 per week will afford a good bill of fare. The possibility of living much cheaper is of course realized by the laborer, who, with uncertain employent, must divide his earnings of from $10 to $14 per week between all departments of the household. Rent in the cities and larger towns is proportionately the largest item of expense. Cottages of four and five rooms rent for $18, $20, $25 and $35 per month. Storied dwellings rent from $40 to $80 per month, according to size and location. Hotel rates, according to the class of house, range from $25 to $75 per month. Table board at hotels and boarding houses at $4 50 to $12 per week. Regular meals can be obtained at restaurants at from twenty-five to fifty cents. Board and room at boarding houses range from $7 to $12 per week. In smaller towns near agricultural districts the prices of market stuffs, board and rents range lower, while in the mountain districts the prices correspond very closely, but in some instances range slightly higher than in the cities on the plains.

Although the wage working people of Colorado are as closely circumscribed by the cost of living in comparison with their earnings as in other industrial States of the Union, the thrift of this class is surprising. A large per cent of this population, including the laborers, mechanics, clerks and working women own their own homes. The opportunity of securing a home in Colorado is one of the flattering inducements offered to the poor man, and to the man of occupation and enterprise a home in Colorado is itself a good foundation for his fortune.

## MANUFACTURING.

THE industrial life of Colorado is of too short duration for any great development in the manufacturing department. But achievements thus far in the production of iron, steel, copper and lead wares from native material are of no little importance and give very positive proof of her unbounded capabilities. Situated in the center of a great wool growing country, and within easy communication with the timbers and cotton fields of the South, it is not an unreasonable prophecy that there will in due time be manufactories for the textile fabrics, besides numerous other establishments which are not numbered among the many manufactories large and small now in operation. That there are present the facilities and the material for extensive manufacturing in Colorado is a self evident fact. The statistics of eighteen principal towns and cities show that an immense revenue is derived from this source, and that the foundation is laid for very extensive operations in future. The total value of manufactures in 1888, in-

cluding smelter products, was $58,181,710. Of this sum $29,217,631 is accredited to the smelters—the products of the ores in gold, silver, copper and lead. The remainder is the value of all manufactured goods from an airy whim, or a package of baking powder to a steam engine or a ponderous piece of mining machinery. The products of iron manufactories, copper and lead works, from native material, are also included in this total of values. The total wages paid by all these industries for the year were $11,061,081. In the eighteen principal towns and cities reporting there were 621 manufactories, giving employment to 14,650 persons. The principal manufacturing points in the State are Denver and Pueblo. Trinidad has also recently established a rolling mill and iron works for working native ores. The products of the several establishments in these places, consisting of raw material from native ores and all kinds of iron manufactures ranging in their importance from an iron rail to heavy and complicated machinery of all descriptions, are the strongest possible proofs of future possibilities.

The two prime conditions of manufacturing—fuel and water—exist in Colorado without limit of supply. It has been shown that the native materials in the metals are abundant. The history of manufacturing thus far demonstrates that there is a ready demand, not only in Colorado, but throughout the Rocky Mountain region for home manufactures of whatever description. Principal among the productive enterprises, besides those of iron and other metals, which have establishments in the principal cities and for which there still is plenty of room in Colorado, are building materials of all descriptions, carriages, wagons and street cars, plain and pressed brick, fire brick, and various fire-clay articles, furniture and a long list of the smaller industries which involve nearly all the trades necessary to a well organized industrial community.

## EASTERN COLORADO.

So much attention has been drawn to this section of the State by its fame as a fertile and richly productive section, where crops are raised each succeeding year without irrigation, that the subject becomes worthy of special mention. From the time of the first agricultural settlement in this part of the State, not longer than five years ago, till the present, it has been an open question, with many differing opinions, as to the permanency of any meteorological condition favorable to the farmer in the arid region. The repeated experiments of a series of years have thus far set aside all speculation concerning this matter; the result has been the acquisition of a large area within the State by a stalwart and thrifty farming population, who have converted this sterile waste of sandy plains into luxuriant fields of grain, and they have built comfortable homes and handsome

towns and villages, with their workshops, their schools, their churches and all the ordinary institutions of social life, It is no longer a disputed proposition, but a self evident fact that these communities are not only self-sustaining, but prosperous. In support of the popular theory of the great "rain belt" area a new condition now comes to light that gives a most positive emphasis to the fact that crops can be grown year after year in this country without irrigation. This condition is found in the peculiar nature of the soil, which is so retentive of moisture that frequent rainfall is not a necessity.

The condition of the different kinds of soil in Eastern Colorado, make it a very difficult matter to draw the line between the rain belt and the irrigated portion of the State. While irrigation extends as far east as Sterling, along the South Platte river there is a large territory, extending from the eastern boundary, as far west as Fort Morgan in the north-eastern part, and as far west as Rocky Ford in the south-eastern part of the State, giving an area of not less than 100 by 280 miles in extent. The most of this territory is a beautiful level prairie and so-called tableland, which has a dark loam soil, susceptible of growing good crops without irrigation. This has been thoroughly tested the past five years. Crops of all kinds mature and yield equal to the irrigated portion along the Platte and other rivers. While there may be no more rain-fall over these tablelands, the soil is such that it retains the moisture and does not dry out as rapidly as along the river bottoms where the soil is quite sandy and loose. All that is necessary to prove these facts, is a look at the fine crops that are being harvested over this territory the present year, which are fully equal to crops grown in Central and Western Nebraska in its early settlement.

## THE LEGAL DISTRIBUTION OF WATER.

THE water of the State is the property of the people. Under the law, a company or an individual constructing a ditch from a natural stream is considered a common carrier, and under the law, may receive a certain amount of money for conveying this water from its natural bed out over the country to certain tracts of land.

The first ditch to appropriate water from any natural stream, said ditch having filed a statement of this fact with the county clerk, is entitled whenever there is any scarcity of water in that stream, to the first right of the water, and in succession as they follow, other ditches are entitled to their proportionate supply. These are called priorities.

By the laws of the State the first ditch constructed has a priority right to the water appropriated, and no canal, tapping the stream nearer its source, can divert the water of the older ditch. The laws provide for measurement, proof of quantity and date of appropriation, so that there

may be no controversy as to whom the water rightfully belongs. Every equitable safeguard which experience suggests is made to protect the rights of those who invest in these enterprises. The people of the State are fully alive to the importance of utilizing the water of the mountains on the farm in order to be able to supply the home markets and prevent as much as possible the outflow of money for breadstuffs, vegetables, fruits, etc., which now goes to other States to a large extent. A title to water and the owner's rights under it, if properly established by law, are as secure as title to real estate.

The rate to be charged for water by the year is regulated by the board of county commissioners for each county, and the law compels a ditch company to give water to any applicant at the price established by the board of county commissioners, whenever the water commissioner of that water district shall determine that there is more water in the ditch than has already been purchased, leased and delivered. There is both the rental and the perpetual water right plan in vogue in the State. Rentals run from $1.50 to $2.50 a cubic inch per season. Fifty statutory inches are considered sufficient to irrigate 80 acres of land, or according to other measurement, 1.44 cubic feet under a five inch pressure per second of time, will convey sufficient water to cover 80 acres of land.

The perpetual rights vary in price from $10 to $50 for enough water to cover an acre of land forever. In addition to this price, which gives perpetual right to the water for a certain number of acres mentioned, companies charge from 50 cents to $1.25 an acre a year to maintain a canal and pay its operating expenses. Of course, a new-comer seeking a home-farm, naturally locates his land, *First*—Contiguous to the stream from which he may take out his own ditch, and *Second*—Contiguous to a ditch already built. In the first instance he absolutely controls his own water supply from the stream, and in the second instance, he joins a co-operative association, so to speak, who divide among themselves the water passing through the ditch, whence they expect to receive their supply. In the first instance, the locator builds and maintains his own canal or ditch; in the second instance, he buys his water and pays someone else for maintaining the ditch.

## HOW TO OBTAIN A MINING CLAIM.

THE location of a mining claim is a very simple process. The prospector starts out into the mountains with an equipment of tools and provisions, his supply of the latter usually intended to last about three days. His means of transportation is a burro, but sometimes he goes on foot. His daily prospecting excursions from camp are always on foot. With his pick in hand he follows the valley at the foot of the mountain, inspecting the surface closely for mineral "float." This mineral float

appears often in little dark bits of oxidized ore, sometimes in the form of mineral dust of different colors, which by the action of waters has made a streak from the apex of the mineral vein down the mountain side. Whether it be a piece of float or a streak of mineral, the prospector follows this indication on a vertical line till he reaches the point where the indication ceases on the surface. This is called the apex and the point of discovery where the prospector makes his location and drives his stake. Upon this stake he writes his name, stating that he has made a location of the claim on a certain date. He then causes the ground to be surveyed to establish his side lines, and the limit of 1,500 feet forward from the point of location. In the older counties of the State the claim is 150 feet wide by 1,500 feet long. In the new counties which includes the greater mining territory, the dimensions are 300 by 1500 feet long. From the day of location the prospector is allowed 60 days in which to sink a ten foot-hole, or deeper if necessary to discover a well defined crevice. This being done he is allowed thirty days more in which to survey and record the property. Then he is required each year thereafter to perform development work amounting to $100 in value. When he has completed $500 worth of work, he can apply for and obtain a government patent upon the claim. This work can be accomplished all at once, or at the rate of $100 a year for five years. If in any year the miner fails to perform the required amount of work, his clain is forfeited, and it is subject to relocation; or should he fail in any event to perform $500 worth of work within five years from the date of location, the claim is forfeited, and the owner is barred the right of a patent, unless he again goes through the formal process of location.

## HEALTH AND PLEASURE RESORTS.

MINERAL springs of the most renowned medicinal qualities abound in all parts of Colorado, while throughout the State there are pleasure resorts and splendid places of attraction of various kinds in great numbers. It is truly said that all of Colorado is a health resort. With its beautiful cities on the plains, its gorgeous mountain peaks and lovely valleys, its awful cañons with their rushing torrents, its forests and its streams, and its broad green parks amid the mountains, what more could Nature provide for the comfort and delight of man? Not only the health-giving mineral and thermal springs which gush spontaneously from the mountain sides invite the invalid and the weary, but around these charms of Nature have been established many delightful resorts with all the accommodations a people can desire for rest and pleasure.

Until of late years there was the only choice in America of the sea side beach, the inland resorts of New York and New England, and the Northern lakes. Now, with the lines of quick transit from the East and the West,

with a large and growing industrial population, with splendid facilities for entertainment, with cosmopolitan institutions and customs, the Rocky Mountain region offers delightful summer resorts and all-the-year residences that compare with the most famous places of attraction in the world. Not only the invalid, but the tourist from all parts of the world, come to Colorado for recuperation and rest. It is especially important that the curative properties of Colorado mineral waters should be understood wherever the afflicted may find it possible to avail themselves of their benefits. It is the testimony of the wisest doctors of medicine the world over that the mineral waters of all countries which contain such ingredients as are found in Colorado waters possess a remedy and often a cure for rheumatism, liver, kidney and skin diseases, and always beneficial to the consumptive. The vast deposits of mineral in the mountains impregnate the waters of the snow, which, bubbling up in some romantic nook in the hills, furnish innumerable mineral springs, whose life-giving liquid has been availed of as a universal restorer. The aborigines of the country and the Indians of modern times have availed themselves of their benefits, and the latter add their testimony to that of the physicians and to the experiences of the white people of to-day, that these waters have wrought wonderful relief and miraculous cures to the afflicted.

## THE IMPRESSIONS ABROAD.

THE great increase of trans-continental travel through Colorado during the past few years, the easy facility of railway communication and the permanent establishment of more extensive commercial relations between this State and the rest of world have served more than all other influences to inform the people abroad concerning the country in all its phases of social and business life. Yet there are many people in the more distant States of the Union whose only conception of Colorado is that which has grown with them from the time when in the days of their youth they were thrilled with the stories of wild western adventure among the Indians and the buffalo of the mountains and plains. Such scenes exist only as a reminiscence of twenty years ago. All traces of savagery are gone and only the traditions of the Indian and the frontiersman remain to give a glamour of romance to the history of the past. All the crudities and privations of pioneer methods have given place to the progressive achievements of an enlightened and skillful people, and an order of civilization which is more than all else conspicuous for its refinement prevails. The State stands dedicated to its schools, its churches and its institutions for the preservation of good government. No State in the Union can claim more splendid schools or a greater number of them in proportion to population, while the churches in the cities are nowhere in the Nation excelled

for their magnificence and costliness. Nowhere in the world can be found a greater degree of intelligence among the poor, while the higher classes are drawn from all parts of the civilized world, bringing with them their education, their refinements and their many accomplishments. Taking the State all in all, there are a greater proportion of educated poor and a less percentage of dependent ones among them than in any State of the Union. As an aggregation, whether among the rich or poor, the number of bright men and women, of broad intelligence and high attainment in the intellectual world is not exceeded in the scholarly cities of fame in America, in Europe or the world.

Colorado is no longer a land of insecurity to person or property. The border and its perils have been pushed beyond its limits, and even far away from the cities in the most isolated fastnesses of the mountains, savage customs of frontier life have given way to civilized conventionalities. The miner in his cabin accompanies his breakfast of bacon and beans with the New York, Chicago and Denver papers, and will chat freely with his visitor on the standard literature of the time, is familiar with the history of his country, and is prepared to discuss the great political questions of the day. Even further away, upon the very border of semi-civilization, where local law has little effect, where the country is open alike to the worst and best of mankind, the tourist seeking pleasure and restoration of health can lie down and sleep with unlocked doors in perfect security and without apprehension of danger to his person or property.

The period has now been reached when there is but little of the spirit of mere adventure in the settlement of the State. Population is pouring into the State by increasing thousands each succeeding year. They are of a cosmopolitan complexion, representative of the industrial classes. They come with the determination to achieve, and seem to have caught the new spirit of progress here before they started from their distant homes. For the most part, they are a people of a cheerful spirit, prosperous in their undertakings and contented with their choice of country.

# COLORADO BY COUNTIES.

THE Bureau of Immigration and Statistics presents to the reader a statement of the industrial condition of each county in the State. It is not asserted that these reports are in every detail of facts and figures, absolutely correct. To reach the most reliable and intelligent sources of information in the time allotted, the bureau mailed to the editor of each newspaper in the State, a set of blanks containing inquiries concerning every material interest of each and every county. These blanks contained no less than one hundred separate inquiries of a general character, besides the latitude which these inquiries gave to kindred subjects without number. The result has been gratifying. To collect and compile the data, besides writing the descriptions asked for, required no little exercise of patient and intelligent labor, and the burden of the work, compassing nearly the entire report of each county, fell upon the shoulders of the newspaper editors. Their work was altogether gratuitous, and no duty was ever more thoroughly or more cheerfully performed without compensation. Their interest in their own respective sections was sufficient remuneration; but while laboring for their own communities, their work was done in behalf of the State. In this, the editor, whose life is devoted to the public, gives another instance of his willingness to do good, not only for his own section, but for the commonwealth.

# THE COUNTIES.

## ARAPAHOE.

THE county of Arapahoe was organized in 1861 and its inception occurred among all the stirring episodes of pro-slavery agitation. When territorial organization began, Arapahoe played its part and the opening chapters of the State's history were enacted on its soil. The story of those exciting days is familiar to all. It is not, therefore, with the past that this work is to do; it is with the present in its relation with the State at large and as a factor in future development. Arapahoe county extends from within a few miles of the foot-hills on the west to the Kansas State line, and embraces in its territory some of the vast domain upon which roved in undisputed possession the Indian tribe whose name the county bears. It is 160 miles long and 30 miles wide. The center of population is in the western end of the county, where Denver is located and where the county's enormous wealth is concentrated. In the center and in the eastern part farming and ranching are pursued, and the soil for these pursuits is of the richest kind. The Arickaree, Republican, Box Elder all tributaries to the Platte river, enrich these vast virgin fields. The Platte flows through the western end, and has no part in the cultivation of the county except in the Platte valley, and by irrigation from the vast canals which capital has built from the cañon of the Platte in Douglas county. The Kansas Pacific division of the Union Pacific is the only line of railroad that extends to any distance towards the center of Arapahoe county. Denver is the county seat, as it is also the capitol of the State. It has 125,000 population alone, and because of its size and commercial importance in a measure overshadows the great county of which it is a contributary part. A sketch of Arapahoe county can not well be written without according to this splendid city the full measure of its glory. During the years of its brief existence it has accomplished more than there has ever been accomplished by any city, and the record of its progress outstrips that of Chicago or Kansas City. This assertion is not extravagant. The results are seen upon the streets, in the magnificent buildings, the character of the city socially, in the powerful influences exercised in the commercial world and in the enormous improvement that is still being made. Here are the fine county buildings, the State capitol costing over two million dollars, costly hotels and churches, and private residences that are palaces in the vast expenditures of wealth. Ten great lines of railroad make this a center, and through this channel the State is in a measure contributary to its prosperity. Surrounding Denver in all directions there are fine farms in a high state of cultivation, and the result is a large number of suburban towns. From the

time of its organization in November of 1861 until 1865, there was no effort made to keep a record of valuation. But in 1865 a careful investigation showed the valuation to be $2,802,952, with a tax of $43,427; in 1888, $55,447,695 and a tax of $1,695,755. This year the assessed valuation is $67,700,000, and upon this there has been no levy at this writing. The assessed valuation of Denver property is $42,000,000, and the real valuation is $100,000,000. The total acreage of land available for agriculture is 860,000; available for grazing only 2,000,000 acres; total acreage of agriculture land under ditch 120,000. Very little attention has been paid the eastern end by the people of the western end of the county, and the impression is current that eastern Arapahoe is made up of arid wastes. But this is an error. Agriculture has been carried on here with a high degree of success for the past five years, and the prospects so far are most flattering. The corn stands six feet high, and the wheat, oat and rye crop is extraordinary. This success is evidence of the real worth of the county, and the most skeptical should be convinced that crops can be raised in this section without irrigation. It is because of the prejudice against non-irrigation that these fertile lands are not so much in demand. The people here are enterprising and their success, in face of the general impression, that the so-called American desert is non-productive, will be a sufficient refutation of this idea. The total acreage of grain is 19,800. Arapahoe county has large manufacturing interests. The value of manufactured goods in Denver alone for 1888 was over $30,000,000, including smelter products. Upon farms there is an assessed valuation of $7,000,000; railroads, $2,000,000; merchandise, $3,000,000; town and city lots, $40,000,000; cattle, $400,000; horses, $500,000. No finer school system exists anywhere than is at present in operation in Arapahoe county. The buildings are some of the most imposing to be found in the State, and the school census is sufficiently large to fill them. These fine buildings are not confined to Denver. By the generous provision of the Government, which sets aside two sections in a township for school purposes, the revenues are always large, and there is always money for the construction of buildings. The system is under the able supervision of trained teachers, and the standard of education is as high in Arapahoe as may be found in the centers of learning in the Eastern States.

## ARCHULETA.

WITH soil good for all farm and garden products, susceptible of agriculture and available from the San Juan river and local mountain streams, Archuleta is rapidly taking rank among the thrifty agriculture counties. It is situated on the southern boundary in the southwestern portion of the State, and, heretofore, has been strictly devoted to grazing. Its 1,800 square miles show a diversified surface over which the San Juan, Navajo, Blanco and Piedra rivers and their tributaries form a network of streams valuable for irrigation. The forests of yellow pine are the finest in the State, and the deep black loam is found to be favorable for all sorts of tree culture, whilst stock raising and farming are

the chief interests. A great deal of mining is done with profit. In 1885, when the county was taken from Conejos, the character of its people was altogether Mexican, but since immigration from Eastern States has set in, the population has increased to 1,000. At Pagosa Springs there is a fine court house, and the county supports four well equipped public schools. As may be seen, this portion of the State is yet undeveloped, and from the character of the soil, products and climate, offers for the future a fruitful field for capital. The mineral springs are numerous and those at Pagosa are especially so, and the waters are of high medicinal quality. In agriculture alone, the field is boundless. There are 400,000 acres of land available, of which 10,000 are under ditch, and the total number of acres devoted to grazing is 176,000. The ore, gold and silver, though low grade, is abundant and prospecting is still in progress with varied success. Both coal and iron are found in great quantities, in fact, fully one-third of the county is underlaid with large coal bodies running in veins of vast extent. The attention of capitalists is being drawn to these enormous beds and coal claims are being rapidly located. In addition to these natural products there is a white sandstone suitable for building purposes. Petroleum is found in large quantities and the lubricating fluid extracted, equals the product of the oil fields of the Ohio valley. For wealth of resources, salubrity of climate and the varied attractions that make up the sum total of all that is required to attract the eye of the coming settler, Archuleta county is bountifully provided. Whilst agriculture and the products of the soil are now receiving most attention, the old industry, stock raising, however, is not diminishing. Upon the thousands of acres of government land fully 10,000 cattle ranged this season, and the estimated number of sheep grown for mutton and wool is 28,000. The county is penetrated by the D. & R. G. R. R. and 27 miles of the road have been completed. There are 50 miles of irrigating canals and water sufficient to reclaim every foot of arable land. The rate of taxation is $2\frac{6}{10}$ per cent.

## BACA.

BACA county is of recent growth, having been separated from Las Animas, of which it was a part, until April, 1889. It receives its name from the first settler on Butte Creek, who is now one of the wealthy Mexican cattle men of Trinidad. The county seat is Springfield, an ambitious town near its center. With an area of 2,535 square miles, an abundance of water in the valleys, a rich soil, Baca county offers great inducements for the farmers. It is located in what is known as the rain belt, where crops of all kinds are raised without irrigation. Agriculture and stock raising are the only industries, and, though yet young, these are sufficient to support the thriving towns of Springfield, Brookfield, Vilas, Boston, Minneapolis, Atlanta, Stonington, Plymouth, Carriso and Carriso Springs. The population is 4,000, and, as the nomenclature of the county indicates, the settlers are from the Mississippi valley and the New England

States. They are thrifty and industrious and under their husbandry the once arid waste is being rapidly reclaimed and made productive. For 1888 the valuation was estimated at $500,000 and the rate of taxation was $1.91. For the year succeeding, the estimate is not yet complete but it will show a great increase in valuation. The $15,000 debt was assumed as the county's proportion of the debt of Las Animas, of which it was once a part. For building material, there is an abundance of timber, and a light colored yet a durable rock is quarried from the hills. Coal is found in various parts of the county, and in the south-western portion, copper is being mined on a small scale. Silver, of a low grade, is also found in the south-west but no attempt has been made to develop this important discovery. The total acreage available for agriculture is 1,420,720, or seven-eighths of the entire county, and the total acreage for grazing is 202,960. The total number of acres of public land unoccupied is 811,840, and the number of acres of unsold State lands available for agriculture is 21,400. The inducements to settlers in this county are free homes on government land, a healthful climate, a rich and productive soil, and plenty of water and timber. Though a young county, no complaint can be made in so far as educational facilities are concerned. There are twenty public schools with competent instructors, and church organizations as follows: Three Methodist-Episcopal, two Baptist, one Catholic, one Presbyterian and one Universalist, and twenty Sabbath Schools. So far as can be ascertained, the total acreage of grain for 1889 is 7,000, yielding as follows: wheat, 20 bushels per acre; oats, 25; rye, 30; corn, 50. The average ruling price at the nearest market last year was: wheat, per bushel, $1; oats, 40 cts.; rye, 80 cts. and corn, 40 cts. The estimated product of butter for market for 1889 is 20,000 pounds. And the estimated revenue from market gardening is $5,000, all of which product, cereals as well as truck, is consumed within the county. The estimated number of cattle, other than domestic, within the county for 1889 is 15,000 head; horses, 500; sheep grown for mutton, 2,000; sheep grown for wool, 8,000; hogs, 600.

## BENT.

BENT county has an area of 1,511 square miles, situated in the south-eastern part of the State, and watered by the Arkansas, Las Animas and other streams. It receives its name from Colonel William Bent, an early pioneer. Otero county bounds it on the west, Prowers on the east, Kiowa on the north and Las Animas on the south. Las Animas, a flourishing city with a $60,000 court house, is the county seat. This city has other large buildings, a $12,000 hospital, a $7,000 brick city hall, a $12,000 brick school house and other projected structures of equal size and importance. Bent is one of the counties of the rich Arkansas valley, bountifully provided with all that contributes to the prosperity of a community. The prairie is level. There is plenty of cedar timber, especially along the Arkansas and Purgatoire rivers and in the hills in the southwest. In these valleys there is nothing in the temperate zone that will not grow. The popu-

lation is about 8,000 with 1,600 of this located at Las Animas. Fort Lyon, in the county has one regiment of United States troops and they contribute not a little to the general prosperity. So long has Bent county been a cattle country that the first inhabutants are all wealthy and the recent settlers find no difficulty in securing a livelihood. Stock raising has always been the chief industry, employing vast capital; with the coming of the immigrant, farming has become almost as important as cattle raising ever was. February, 1879, was the date the county was created, and the indebtedness is only $24,000, with a taxation of 3 per cent. All religious denominations flourish and the effect is manifest in the high moral tone of the community. There are six public schools, with a school census of 200. The information most important to new arrivals, however, is the question of land. The total acreage available for agriculture, 700,000; available for grazing only, 26,700; total number of acres of agricultural land now under ditch, 53,000. There are about 400,000 acres of unoccupied government land available for agriculture; also 12,000 acres of unsold State land. On the grazing land there are 15,000 head of cattle; 2,500 head of horses; 7,500 head of sheep of which only 500 were raised for mutton. The hog product is 400 head this year. Sand stone is plenty in this county, and oil is generally supposed to exist, though no effort has ever been made to find the oil. There is every reason why farming should be profitable in Bent county. It has plenty of streams for water and whilst irrigation is not necessary to the extent, perhaps, that it is in other parts of this State for successful crops, yet there is considerable development in the ditch business. There are five canals and several private ditches, aggregating 65 miles. Facilities are afforded the settlers by the Atchison, Topeka and Santa Fé railroad, and by this channel the markets either east or west, are open for the distribution of produce. Mineral springs abound in the county and although little advertised they are growing in favor for their high medicinal virtues. The days are soon coming when Bent county will furnish the State with some of the finest resorts within her borders. In closing this sketch it will be of interest to state that Bent county has a good record in the manufacture of syrup. According to the reports there were last year over 2,000 acres of sorghum raised, out of which 2,000 gallons of syrup were made. There were 3,000 acres of alfalfa sown and the crop exceeded 15,000 tons. There were 30,000 acres in native grasses from which about 40,000 tons of hay were cut. This simply goes to show that side by side with live stock there are sources of wealth in this county to which cattle raising itself is no rival in any respect. Farming is destined to become a powerful factor in Bent county's growth, a fact which the cattlemen themselves are not slow to recognize.

## BOULDER.

BOULDER county has a population of 18,000, and the county seat is Boulder with a population of 4,000, situated close to the foot-hills at the mouth of Boulder cañon. The court house and grounds cost $125,000, and the city is otherwise beautified by streets well shaded and a large number of handsome residences. The county of Boulder has an area of 1123 square miles, and was organized in 1861. The people are largely from the Middle States. There is very little actual poverty, and the wealth of the county is almost equally distributed. The industries are mining (coal and mineral), quarrying, mercantile and agriculture. The mineral districts are divided into Grand Island, Magnolia, Ward, Gold Hill, Sugar Loaf, Central Mining and Boulder, and the general character of the formation shows gold and silver (native), tellurides of gold and silver, pyrites of copper and iron, silver ore containing all the sulphurates of silver, galena and zinc blend. These are in fissure formations and placer claims. In 1859 the native gold discoveries occurred, and ten years later silver was found at Caribou. The estimated output for the county this year is $650,000. For the treatment of this mineral, there are 26 stamp mills, two concentrators, one electric reduction mill, and one sampling works; the whole industry sustaining an estimated population of 10,000. Lyons, a town on the Denver, Utah and Pacific, has the most development in stone quarries. Other quarries have been opened at Gere Cañon and in the vicinity of Boulder. The quality of the stone is desirable for building, flagging and paving purposes. Along the foot-hills, through the county, there are vast beds of this stone, requiring only the capital for excavation. At Longmont, a city of 1,800 population, there is a flourishing canning factory and three flouring mills, and at Boulder, an iron foundry. At the latter place there is also a flouring mill with a capacity of 150 barrels of flour per day. The seltzer and mineral springs of the county are remarkable. Those at Springdale are grateful to consumptives, inasmuch as their altitude is but 6,500 feet. These springs are tonic waters, helpful in debility, rheumatism, liver and kidney ailments; soda and iron are their leading constituents. Perhaps the most noted of the springs is the Boulder water, which has a sale throughout this country and Europe. The analysis as made by Dr. J. A. Sewall, of the Denver University, shows these constituents: Carbonate of soda, .984; carbonate of magnesia, 6.020; carbonate of lime, 7.480; carbonate of iron, .081; chloride of sodium, 30.217; chloride of potassium, 1.100; sulphate of soda, 3.840; silica, .102; to the pint of mineral water, 49.824 grains; carbonic acid gas, 39 cubic inches. This analysis shows these waters to be a complicated medical prescription, containing various salts blended together, obtained from the strata of rocks through which they pass.

It is estimated that for the year 1889 there are in the county 2,505 dairy cows or a total of stock 17,353 head; horses, 6,190; sheep grown for mutton, 460. The inducements offered to the settler are fruit culture, apiary business, quarrying, lime, agriculture, coal, gold and silver mining, and plenty of timber. The Union Pacific and the Burlington railroads vie with each other for traffic. Educationally, the county is well sustained. There are

fifty-two school districts with fifty-seven public schools. At Boulder city is located the Colorado University and the Benedictine Academy. The school census for the year is 3,699. The Congregational, Catholic, Episcopal, Methodist, Baptist, African M. E. Church, Presbyterian and Christian denominations each have their places of worship, and the buildings are all fine specimens of modern architecture. The estimated number of members of each denomination is 125. The county is well supplied with newspapers.

The total acreage in grain for 1889 in the county is 30,709 and the probable average yield per acre is as follows: Wheat, 30 bushels; oats, 40; rye, 30; barley, 35; corn, 30. The average price for this is: Wheat, per bushel, 90 cents; oats, 35; barley, 70; corn, 30. The total acreage in fruits for 1889 is 575. The yield of raspberries for 1889 is 20,575 quarts; grapes, 9,120 lbs.; currants, 37,920 quarts; strawberries, 31,235 quarts. The estimated product of butter is 312,180 pounds. The produce is marketed over the State. The average cost of water per acre per season is $1.00.

## CHAFFEE

RECEIVES its name from the Hon. Jerome B. Chaffee and is a splendid monument to his memory. It is one of the wealthy mid-State counties. The Continental Divide forms its western boundary. On the north is Lake county; on the east, Park and Fremont counties; and on the south is Saguache county. The Denver and Rio Grande, Colorado Midland and the Union Pacific systems cross and recross the county. The important towns are Buena Vista, the county seat, Salida, Maysfield, Garfield, Nathrop, Monarch, Centerville and Poncha Springs. Chaffee county was created in 1879 from a part of Lake county and in 1880 had 6,500 population. The estimated population to-day is 15,000. Lying within a sort of a park between the Continental Divide on the west and the Park range on the east, the topographical aspect is that of a basin. But into this park this large population is gathered and they are thriving, perfectly content with their lot. The county is exceptional in regard to climate; the beauty of its location and its rapidly increasing importance as an agricultural and mining county give it added interest to the world in general. Through this vast park, or valley, the Arkansas river rushes and loses itself amid the picturesqueness and fertility of a smaller valley twenty-eight miles in length and twelve miles in breadth. It is here, Buena Vista, the county seat is located. At various points, tributary streams from the surrounding mountains cross this park and empty into the river. It has been estimated by the careful computation of an experienced engineer that there are 100,000 acres of land available, when under irrigation, for agricultural purposes and 350,000 which furnish a good range for stock within the confines of this valley. Five miles westward of Buena Vista rise the celebrated trinity of college peaks, Harvard, Princeton and Yale, while the distant view southward is limited by the snowy summits of the Sangre de Cristo range. In this

vicinity are also the celebrated Cottonwood Springs; an analysis of the water shows carbonate of soda, carbonate of magnesia, carbonate of lithia, carbonate of lime, iodine, sulphate of soda, chloride of sodium and silica, and their efficacy in cases of rheumatism, lead poisoning, cutaneous diseases and general debility is now well proven. Nine miles from Buena Vista, in a southwesterly direction, are the Haywood Hot Springs, similar in nature to the Cottonwood Springs. Twenty miles from Buena Vista are the celebrated Twin Lakes, of whose beauty many tongues have sung and many pens have written. Silver, copper and gold mines are located in the southern part of the county, and here are the quarries from which the granite for the Topeka State capitol was cut. Hancock and Pine Creek have the gray granite quarries; Nathrop, the lava stone deposit; and the dolomite and marble at Calumet. All these stones have a fixed value in the market and the demand is increasing as they grow in favor for building purposes. In Chaffee county there are 53,000 acres of land with a valuation of $141,956, and the improvements exceed $399.623. There are 172 miles of railroad, with a valuation of $1,444,146. As a grazing county, Chaffee is not deficient. Her valuation for cattle is $78,324 whilst her mines are $94,981. The total valuation is $2,650,467. So far as her mining industries are concerned, they continue to show advancing prosperity. In gold, the county produced $393,456.69 last year; silver, coinage value, $482,886,93; total, gold and silver, $876,343.62; lead, 477,086.78; copper, $17,032.41; total value of production for 1888, $1,370,462.81. This year these figures will be greatly increased, The condition of Chaffee county, as shown in the foregoing, speaks for itself. For investment it presents unquestioned inducements and the prospects are that her interests will be still further increased by a large influx of capital within the next twelve months.

## CHEYENNE.

LIKE the counties of Bent and Elbert, of which Cheyenne county was a part, its million of acres are devoted to farming and stock raising. It is one of the recently organized counties, dating its birth with the current year. Its eastern boundary is the State line of Kansas, and Kit Carson, Lincoln and Kiowa counties bound it on the north, west, and south, respectively. There are 1,800 square miles, and from its contiguity to Kansas, much of its population is the overflow from the bordering counties of that State. There are a number of streams, the principal of these being the Big Sandy, which winds its way along a well-timbered valley. The population is about 500, of marked industry and an ambition to progress that promises well for the towns of Cheyenne Wells and Kit Carson, and the settlements generally. The valuation on property is fixed at $1,750,000, with rate of taxation of 25 mills. The debt is $18,000. For a new county, Cheyenne has prospered fully as well as any of her recently admitted sisters. There are five schools, of the value of $6,000. Three denominations, Catholic, Methodist and Baptist. Of the 1,200,000 acres of land, over 1,000,000 acres are available for agriculture, leaving but 100,000

for grazing purposes. Of this area 100,000 acres is government land, and 64,000 represents the acreage in unsold State lands. The discovery of gas, in 1887, has awakened interest in this direction, and the presumption is that underlying the most of the territory there is an inexhaustible supply of natural gas. The Union Pacific railroad traverses the county and has opened up quite a prosperous section. Good soil, a healthful climate, plenty of water, free land in abundance, and an unsurpassed range for stock raising are the inducements offered to settlers. Within the last year farming has obtained a firm footing. The total acreage in grain is 2,000, producing as follows: wheat, 23 bushels; oats, 45; rye, 36; barley, 38; corn, 55. Last year the ruling price at market was as follows: wheat, 85 cts. per bushel; oats, 45 cts ; rye, 50 cts.; barley, 45 cts. and corn, 50 cts. The total number of acres in fruit is fifteen. Over 10,000 pounds of butter were made and sold this year. And the garden truck produced was disposed of at a large figure. Being within the rain belt the county has no irrigation, though water can be obtained very readily for reservoirs. The peculiarity of its numerous streams is that whilst superficially dry, there is a subterranean flow which needs only to be properly tapped to give the country all the irrigation needed. It is estimated that there are fully 1,000 springs which assist in keeping the Big Sandy a living stream a distance of over 200 miles through some of the richest land in the State. The stock interests still flourish. It is estimated that there are 4,000 head upon the range; over 1,000 head of sheep were raised this year for mutton, and over 4,000 for wool.

## CLEAR CREEK.

THIS is one of the wealthiest as well as one of the oldest of Colorado's county organizations. Twenty-two years ago it was separated from Jefferson county. The county seat is Georgetown, and is provided with a palatial court house and a brick structure for jail purposes. The county also supports here a poor farm. As is generally known, mining is the vocation of the population, which exceeds 7,000. The county seat alone has 2,000 people; Silver Plume, 700, and Idaho Springs, 1,800. Being essentially a mining community, the population is distinctively cosmopolitan. They are drawn hither from mining countries the world over. The county debt is $40,000, and the valuations $1,900,000, with a tax rate of 3½ per cent. Gold, silver, copper, lead, zinc and iron are mined. Among the mines will be recognized some well known producers. There are about 175 in operation, including the Terrible mine and Pelican-Dives, two of the first discoveries. During the last year the well defined mines to produce were the Contact, Daisy and Poor Man's Relief. The ore is principally found in the regular fissure veins. The output for the entire county this year was $1,100,000, giving employment and sustenance to over 3,000 people. This includes the working forces at the fifty or more stamp mills, etc. The future of this county in a mining sense is assured, and the producing prospects extremely good. Not only is it a mining county, but in its valleys and along

the foot hills there are some very rich agriculture lands of which 1,000 acres are available, and the remaining 2,000 suitable for grazing. Stone and lime are found here in quantities inexhaustable, and the facilities given for ready intercourse with the commercial world make Clear Creek county a desirable place for investment. The railroads are the Colorado Central, and the Georgetown, Breckenridge and Leadville roads. As a place of health resorts, it is second to none in the State, that of Idaho Springs especially having already achieved a world-wide celebrity. But mining will always be the chief industry. There are now 143 paying mines, and this number will be greatly increased as development progresses.

## CONEJOS.

IN Spanish the word Conejos is "rabbit," and to the fact that the country twenty years ago, was overrun with these animals, is due this application of the word when the county was organized at that time. The Rio Grande bounds Conejos on the east and north, and the summit of the Conejos range marks the line which divides it from Archuleta on the west. At Conejos, on the south bank of the Conejos river, is located the county seat, where is soon to be built a commodious court house of native red lava rock. Timber is plenty and the valleys of the Rio Grande, San Antonio, Conejos, La Jara and the Alamosa rivers are fertile in the extreme. There is a mixed population of Mexicans and Americans, numbering 6,000. The chief towns are Alamosa, Manassa, Antonito, Conejos, La Jara and a number of Mexican plazas. The chief feature physically of Conejos county is the mineral deposits, which are found in leads and placers, carrying gold and silver. The first discovery was made at Conejos camp in 1881, but the latest and most remarkable discovery since that of the Leadville carbonates was made in April of 1889, at the Antonito carbonate camp. It was a carbonate formation carrying gold and silver, and so rich is it that one man, it is stated, can pan from $3.00 to $5.00 per day, It is not, however, free milling altogether, and it will require smelters for treatment, and these are now on the ground and will soon be in operation. The tract for agriculture is about thirty by forty-four miles in extent, and the foot hills and mountain sides are set down as the only grazing lands. There are fifteen schools in the county, which do not include the Conejos Academy and the Huntington Seminary. The papers of the county are weekly and are prosperous and widely read. Irrigating canals several hundred miles in extent are constructed, and the Denver and Rio Grande railroad passes through the county. Conejos has over $2,000,000 taxable property; the rate of taxation is $2.50 on the $100; the debt does not exceed $120,000, and is bonded for twenty years at seven per cent. There are 33,000 acres in grain this year, the average yield of which will run wheat, 27 bushels; oats, 61; rye, 43; barley, 54. Last year the prices which ruled were, wheat, per bushel 80 cents; oats, 62; rye, 75, and barley, 50. Seventeen thousand pounds of butter were made this year, and 700 pounds of cheese. The estimated product of gardening was $2,100. The surplus of

this was marketed in New Mexico and Western Colorado, bringing the prices above quoted. The average cost of water per acre, per season is $1.00, or a perpetual water right for 160 acres is $800. The estimated number of cattle this year is 5,846 head, other than domestic; horses 2,473; estimated number of sheep grown for mutton 13,228; estimated number grown for wool 13,228; hogs 500. In almost any part of the county on low land, artesian wells are struck at a depth of 55 to 100 feet, and the water is very cold and soft. The Catholics have seven churches; Espiscopalians two; Presbyterians four, and Methodists one; each with a denominational following, to wit: Catholic 3,000; Episcopal 600; Presbyterian 600, and Methodist 400.

## COSTILLA.

HAPPY and contented are the people of this mountain county. The crop prospect is most flattering. More than 100,000 acres are planted in grain and the yield will be: Wheat, 30 bushels; oats, 60 bushels; rye, 30 bushels; barley, 35 bushels; the prices ruling high, as follows: Wheat 90 cents per bushel, oats 70 cents per bushel, rye 90 cents per bushel, barley 90 cents per bushel and corn $1.00 per bushel. It is from Costilla county that New Mexico and the mountain districts get their supply of truck and fruit. Costilla is Mexican for "ribs." It is the county of the fertile San Luis Valley. San Luis is the county seat where is built a court house and a jail made of adobe years ago. In the eastern part are great mountain forests and the water supply comes from the San Luis Lake, the Saguache, San Luis, Cotton and Dead Man's creeks on the north, and the Trinchero creek flows through the central part of the county. The soil is a rich sandy loam that responds bountifully to the touch. About 5,000 is the population and the principal towns are San Luis, Fort Garland, Garnett and Zapato. Stockraising is a large industry. There is here a large Mexican population, but the Americans came principally from the New England States. The valuation for this year is over $1,000,000. There is no debt and warrants are at par. The irrigating canals exceed 100 in number, of which there are more than 500 miles in the aggregate. The D. & R. G. is the only railroad in the county. Sheep raising is an important factor. At least 14,000 head were grown this year for wool.

## CUSTER.

CUSTER county was taken from Fremont in 1877. It is named in honor of General Custer, killed by the Indians at the Big Horn disaster. Greenhorn, Wet and Red Mountains are the ranges. The county is forty by thirty miles in extent and within this area there is considerable mineral. Of the thirty mines in the county, seven are producing and the product is about $600,000 of gold and silver. Lead, however, is the chief staple article, aggregating in value last year to $263,078.40. The total out-

put for the county is $268,918.63. For its size, Custer is one of the most thickly populated of the counties and the people are prosperous. Silver Cliff, Rosita, Querida and West Cliff are the principal towns, the latter being the terminus of the eastern branch of the Denver and Rio Grande railroad. Antelope, Grape and other creeks furnish water for the fertile area devoted to agricultural purposes. In this area, under cultivation, there are 58,187 acres, with a valuation of $155,413, and a valuation on the improvements of $189,469. The valuation on cattle is $145,000; on horses, $110,000; and on mines the valuation is over $130,000. The entire valuation exceeds $1,000,000. As may be seen by these figures, the live stock industry is the principal support of the county, doubling in valuation that of the mines. The prosperous condition of this industry is due to the exceedingly favorable climate, the abundance of water and the other natural advantages of Wet Mountain valley. The stock raised is not altogether bred for range purposes but considerable attention is devoted to fancy breeding. The effect of this is seen in the higher character Custer county raised stock has attained in the markets of the State. Whilst the mineral resources of the county have not been developed very extensively within the last few years there is, however, a vast quantity of mineral. Capital is required for development work, and money so expended will not fail to bring satisfactory returns.

## DELTA.

IN 1883 this county was formed from a part of Gunnison, and took its name from the county seat of Delta, so-called from its peculiar location at the junction of the Gunnison and Uncompahgre rivers. The population is about 4,000, of which Delta has 500. The soil is adobe and a sandy loam; the hills are covered with pine, spruce, quaking asp and cedar and the valleys with cottonwood timber. Plentifully watered by a score of rivers and creeks, the county affords ample facilities for ranching and grazing. The debt is $48,000, and the valuation is $950,000, double that of the year of its organization. The present rate of taxation outside of town levy is thirty-four mills. There are fifteen schools with 650 scholars, three church buildings and four denominations, Methodist, Baptist, Presbyterian and Seventh Day Adventists. The total acreage available for agriculture is 60,000 acres; the acreage available for grazing 800,000; the acreage under ditch 16,000. There are great beds of undeveloped coal and a fine quality of sandstone is abundant. The coal fields are thirty-five by fifty miles in extent, partly in Gunnison and Mesa but mostly in Delta county. Here the veins run from two to fifteen feet in thickness. The future of this industry is good. A portion of this coal is for coking purposes. There are about 100 irrigating canals aggregating in length 500 miles. The county is tapped by the D. & R. G. R. R. The sanitary inducements for health seekers is good, the climate being mild in winter. Large lakes are found on the mesas, where fish are abundant. There is one cheese factory and one flouring mill. A great many cattle are raised. There are on the range now 18,000 head and

3,000 head of sheep. The total acreage of grain this year is 4,600, the yield of which will be large. Wheat per bushel brings seventy-five cents; oats, forty-five; rye, twenty-five; barley, seventy-five, and corn, seventy. There are also 300 acres of fruit. Raspberries were grown to the extent of 2,000 quarts; grapes, ten tons; currants, 3,000 quarts; strawberries, 6,000 quarts. The butter product exceeds 28,000 pounds and five tons of cheese were made. The product finds a ready market in the mining towns. The cost of water per acre per season is $1.50.

## DOLORES.

HERE the agricultural interests have but a weak foothold, although in the western part there is a large quantity of fertile land. The county is one-third mountainous, and consequently the chief source of wealth is the mining industry. In the eastern portion there are forests of quaking asp and spruce timber. The valleys of the East and West Dolores rivers are rich and well populated, and like the average of mountain counties, there is an abundance of water in the creeks. Rico, the county seat, is the most important town, and has an altitude of 8,500 feet. In extent, the county has over 900 square miles, and supports a population of 1,000, mostly from the Eastern States, and composed largely of a class of people who drift to a mining country. Dolores was created in 1881 from the southern part of Ouray county. The valuation at that time was $345,000. For 1889 the valuation is $500,000, with a tax rate of 55 mills and a debt of $83,000. The general character of the mineral formation is lime, phorphry and some quartzite. The veins are fissure and contact. In 1878 the first ore discovery was made, and the product now is mostly silver. There is some gold in the ore. The Pioneer and the Lone Cone are the mining districts, with six well developed mines. The output this year is $1,000,000, largely silver. There is one concentrator and one reduction works, and the prospect for mining is flattering. Coal is found in the sandstone formation and the iron that abounds is only used for flux for smelting. Coal mining is yet in its infancy. There are great beds on both sides of Dolores river and in the vicinity Rico. The banks at Grand View and at Pasadena are the only extensive developments thus far made. Last year the output was about 300 tons. West of Rico are the unoccupied public lands, all of which are available for agriculture. Brick clay is plentiful and there are immense quantities of lime and good building stone. The Hot Springs on the West Dolores, about twelve miles from Rico, are medicinal and the virtues that have made the waters of other watering places in the State celebrated, are claimed for those of Dolores. The climate is delightful. Upon the construction of the proposed railroad, the lumber interest will become a strong inducement for investment. The estimated number of cattle, other than domestic, is 4,726, which represents the grazing industry.

## DOUGLAS.

DOUGLAS is a well watered and wooded county lying between Arapahoe county on the north and El Paso county on the south. Platte river bounds it on the west and on the east lies the flourishing county of Elbert. The soil is a sandy loam adapted to farming and stockraising and has a valuation of over $2,000,000. There is no debt except that of $18,000 incurred by the issue of bonds to construct a new court house at Castle Rock, the county seat. At the organization of the Territory, Douglas county was created and named in honor of Stephen A. Douglas, of Illinois. The population is 4,000, the principal towns being Castle Rock and Sedalia. The people are prosperous and happy. At Russellville, on Cherry creek, is where gold was discovered in early days and the placers have only been worked spasmodically since. The ore is well distributed and will not pay to be worked. There are thirty public schools in the county of aggregate value of $20,000. The school census is 850. Denominationally, the community is evenly distributed among the Methodist, Episcopal and Catholic churches. Three-fourths of all the lands are available for agriculture and the remaining fourth is grazing land only. Irrigation ditches are not much in demand owing to the frequent falls of rain. Douglas is one of the counties to which the rain belt theorists point as an exemplification of the fact that crops can be raised in Colorado successfully without irrigation. The yield per acre this year as estimated will be: Wheat, 25 bushels; oats, 40 bushels; rye, 30 bushels; barley, 40 bushels; corn 50 bushels. Fruit culture is becoming a success, especially the apple and other temperate zone varieties. Raspberries, grapes, currants and strawberries are also raised with profit. Plenty of soft coal is found in the different parts of the county but it is not extensively worked. Lava stone of different colors is quarried. It is a fine building material. The Highline canal runs through the county on its way towards Denver; and extending across the county from north to south are the Denver and Rio Grande and the Atchison, Topeka and Santa Fé roads; the Denver, Texas and Fort Worth crosses the county in the northeast and on the southeast, and along the southeast is located the Denver and South Park, making in all about 100 miles of railroad. There is no alkali, the water is pure and the elevation is such as to make Douglas a desirable sanitarium. The county supports several flour and lumber mills, and the butter and cheese factories have plenty of business. The inducements for settlers are: A splendid farming and dairying country; a healthful climate, with soil and water unsurpassed. The markets in Denver are easily reached and the social conditions of the community are desirable.

## EAGLE.

THE county takes its name from Eagle river. It has 2,000 square miles and 5,000 inhabitants. The Eagle and Grand rivers and their tributaries water the soil abundantly, hence the heavy growth of timber and the adaptation of the valleys for agriculture. The soil is a fertile sandy loam with a sub-soil of gravel. Red Cliff, the county seat, has

500 population. The other important towns are Gilman and Mitchell. Since 1883, when it was created from Summit, the county has prospered. The valuation is $1,500,000; the rate of taxation $3\frac{3}{10}$ per cent., and the debt $130,000. Gold, silver and lead have been mined successfully since 1879. The districts are Taylor Hill, Holy Cross, Eagle, Battle Mountain, Wilkinson, Lake Creek and Brush Creek. This year the output is estimated at $3,000,000, the product of 100 mines. Never in the history of the county has there been such an activity in mining as at present. The future for Eagle is full of encouragement and hope. The total acreage available for agriculture is 20,000, and the whole county is good for grazing purposes. There are 5,000 acres now under ditch. There are several thousand acres of government land and the school lands which are good for agriculture remain unsold. There are 10,000 head of cattle and 2,000 head of horses upon the range, and 500 sheep were grown this year for mutton. Eagle county has twelve public schools of the value of $6,000, and a school census of 350. The churches are Methodist and Congregational, and there are four non-denominational Sabbath schools. Eagle county has 3,000 acres under irrigation and over 2,000 acres for pasture. One thousand bushels of wheat were raised last year from thirty-eight acres; 37,000 bushels of oats from 800 acres; 1,000 bushels of barley from thirty-seven acres; 200 bushels of rye from seven acres. From 127 acres 18,000 bushels of potatoes were raised; native grass, 2,151 tons were produced from 2,483 acres. Alfalfa grows well, and the dairy business is good. There are 2,000 head of horses in the county and 9,000 head of cattle. Markets for these products are found in the mining towns of the surrounding country and the ruling prices are good.

## ELBERT.

ELBERT has 1,854 square miles, about one-third of which is railroad land. It was organized in 1874 and named in honor of Governor Samuel H. Elbert. Agriculture and grazing are the industries, the ranches are fine, the cattle fat and plenty, there is plenty of water, and timber grows everywhere in abundance. It is one of the promising counties of the great divide country. The loam soil is rich and deep, the surface undulating, and crops are produced without irrigation, equal in size and quality to crops gathered in any part of the State. The population is 2,800, and the most important town is Elizabeth, a place of 500 population, located on the Denver, Texas and Ft. Worth railroad. The other towns are Elbert and Kiowa, the latter being the county seat. The peculiarity of the people is that residents of six years and more are all wealthy, and the late settlers are prosperous and contented. The assessment is $2,500,000, and the rate of taxation is 15 mills on the dollar. The county never had any debt. There are 2,000,000 acres of land available for agriculture, of which 986,560 are for grazing purpose. Gold is found in the gulches which were worked more than twenty years ago, but the placers have since been abandoned. There is coal in abundance, principally at the mouth of Hay Gulch, Kiowa Creek and on the Bijou and Sandy Creek. The total number

of acres of unoccupied public land is 150,000, and an equal number of unsold State lands. There are six irrigating canals, twenty miles in extent. The Rock Island, Union Pacific and the Denver, Texas and Ft. Worth railroads cross the county. The scenery is picturesque, especially in the vicinity of Elizabeth, where the Denver, Texas and Ft. Worth railroad contemplates the erection of a hotel and otherwise improving the place for the benefit of tourists of Texas and other Southern States. The country here is rolling, heavily timbered and populous, with a wealthy class of ranchmen who have fine farms and plenty fine stock. There are also alum and sulphur springs in the vicinity, charged with medicinal virtues. Elbert has always been considered the banner grazing county, from the mildness of its winters, the abundance of water and the plentitude of the nutritious grasses; but the farmer has fenced in the range, and while the domain of the cattlemen has been restricted, the industry yet flourishes. This year there are 55,000 head of cattle in the county; 5,000 head of horses and 60,000 head of sheep. Socially, the people are intelligent, and are largely settlers from the Atlantic border States. There are sixteen public schools, with a census of 514, and school property worth $10,000. The Methodist, Campbellite, Presbyterian and Catholic churches flourish, and the latter has in course of construction a fine stone edifice at Elizabeth. A creamery and a race track are also being built at this place. Near Elbert, the second flourishing town, are several ranches of blooded stock, notably, that of Birks Cornforth.

## EL PASO.

THIS is the county of Pike's Peak, of Manitou, and of Colorado Springs. It is one of the best advertised sections in the West, as may seen by the volume of travel which pours constantly in from the East and South. No other county has such a wealth of natural attractions. What these are is known to the reading world by means of the railroad folder and by other railroad advertising. El Paso derives its name from the Mexican words "the pass," which were more significant in the days of the county's organization than at present, when Colorado City stood at the very gate to the mystic region on the Western Slope. Colorado City was at that time the capitol of the territory, and when that honor was taken from it the town sunk into apathy, and in a broken hearted fashion barely existed until the completion of the Colorado Midland, when the erection of the shops brought new life and converted the dead village into a bustling city, rivaling in energy the proud sister city a few miles distant. Manitou, also has grown until now its praises are sung wherever the English tongue is spoken. Here the soda springs, the iron and the sulphur bubble up in the street, and through the summer months thousands upon thousands of tourists, invalids and sight-seers gather to sip the healing waters. Colorado Springs is the second city in Colorado. It, too, is favored as a health resort, and is quite a sanitarium. Great wealth is concentrated here, to which is due perhaps the

fact that Colorado Springs is one of the most attractive, as well as most healthful, cities in the country. It has opera houses, magnificent hotels and railroad facilities in abundance. In many respects the county proper is similar to Elbert. The soil is rich, a portion of the middle half is well irrigated, and a part of the agricultural lands is located on the divide. Here most everything grows. Potatoes and corn yield enormously, and rye and sorghum are raised with profit. In the eastern part there is a great quantity of range upon which 40,000 head of cattle graze, and 1,150 horses; the estimated number of sheep raised this year is 115,000, of which 80,000 were raised for wool. The Denver, Texas and Fort Worth extends from north to south through the center, and running from east to west is the Rock Island. The Denver and Rio Grande, Missouri Pacific and Atchison, Topeka and Santa Fé cross the county at the western end. The county is peculiary rich in coal. At Franceville, on the Denver, Texas and Fort Worth, there are large mines operated profitably and the supply is inexhaustible. In El Paso county there are 26,000 acres under irrigation, and the aggregate for pasture is 355,248 acres. From 312 acres 6,000 bushels of wheat were raised; from 2,892 acres 59,000 bushels of oats were raised; from 148 acres 3,000 bushels of barley were grown; from 462 acres 5,165 bushels of rye were grown; from 700 acres over 20,000 bushels of corn were grown; from 1,979 acres 158,975 bushels of potatoes; from 286 acres 508 tons of timothy; from 86 acres 119 tons of clover; from 8,708 acres 9,152 tons of native grass; from 1,037 acres 3,779 tons of alfalfa. Small fruits grow in abundance, and the quality is finer than can be raised anywhere in the East. Over 100,000 pounds of butter were produced last year, and cheese 17,000 pounds. The honey produced by the apiaries exceed 2,000 pounds. Sheep and cattle raising form a great industry. Last year the clip in wool was 526,295, and the number of sheep 95,000; cattle, 40,000 head; horses, 6,000 head; cows, 1,700 head. The total valuation of the county based upon the assessor's reports is $8,624,845; the estimated valuation $25,374,535, of which the assessed valuation is $1,789,450 upon railroads and $1,391,535 upon land and improvements.

## FREMONT.

HERE is the chief source of Colorado's great supply of oil. In other respects it is a prosperous county. Farming, stockraising, horticulture, wells and refineries and coal mining all add to its great wealth. It is one of the original counties; has 1,559 square miles and was named in honor of General Fremont, the "pathfinder." Its population is 10,000. Cañon City, the home of the penitentiary and the county seat of the county, has 3,500 inhabitants; Coal Creek, 1,500; Rockvale, 1,100, Florence, 1,000; Williamsburg, 600. The public buildings at Cañon City are built of stone, the county buildings alone costing $35,000. Two-thirds of the county is covered with forests of pine and spruce, in the western

part, and piñon, cedar and cottonwood on the river bottoms. The Arkansas river runs through the whole length of the county, which, together with the numerous creeks, is sufficient to water every foot of the tillable land. The soil is of sandy loam, excellent for horticulture. The records in 1870 were burned and in consequence the valuations date back only to that time, when the figures were given as $399,000, with a sixteen mill tax. The valuation this year is $3,122,000, and the debt $80,000. The minerals are mostly low grade; copper and lead are rich, but gold, silver and nickel are yet undeveloped. Near Cañon City there are large quantities of kaoline. There are mountains of iron which in the future will prove remunerative whenever worked. An extra quality of bituminous coal is mined, with an output last year of 500,000 tons. This is the product of eight mines. The extent of the principal beds covers an area of two townships. This industry supports 3,500 people and every year adds to its wealth. There is very little unoccupied land available for agriculture and almost all the available State lands are in the hands of companies. The Beaver Land Company alone has 200,000 acres under the reservoirs and ditches of that corporation. There are carriage factories, a roller process flour mill, a brewery with about $565,000 capital, a bottling works and two oil refineries. The sandstone quarries, limestone and cement are resources of promise. Oil, however, is the wonder in the line of natural resources. There are thirty producing wells of a capacity of 1,200 barrels per day. These are at Florence, a flourishing town, which derives its support and growing wealth from the petroleum field of that vicinity. Fremont county furnishes the illuminating fluid for the State, and the crude material is used for manufacturing purposes. The entire product, crude and refined, finds a ready sale throughout the adjoining States and Territories and the supply hardly equals the demand. Fremont county has five irrigating canals aggregating thirty-seven miles in length; and the Denver and Rio Grande and the Pueblo and Arkansas Valley railroads with 125 miles of trackage give the people transportation facilities. There are hot springs and strongly impregnated mineral waters at Cañon City, where also may be had good accommodations for invalids and tourists. The county has twenty-five public schools with a school census of 2,500; all denominations exist and the church buildings are models of architecture. Grain has a total acreage this year of 1,200 acres, with a yield per acre, as follows: Wheat, 30 bushels; oats, 40 bushels; corn, 30 bushels. There are 700 acres in fruit, with 8,000 apple bearing trees; 500 peach trees; 600 pear trees; 1,000 plum trees; and 500 cherry trees. The estimated yield this year in raspberries is 4,000 quarts; grapes, 75 tons; currants, 30,000 quarts; and strawberries, 120,000 quarts. The butter product is 12,000 pounds. Upon market gardening, it is estimated that $20,000 was realized. The average cost of water per acre per season is $2.50. Grazing still holds its own as an industry, with 20,000 head of cattle and 2,000 head of horses upon the range as an indicator of general prosperity.

## GARFIELD.

IN 1883 this county was created from the southwestern part of Summit county, and named in honor of President James A. Garfield. It is two-thirds mountainous, and the remainder abounds in running streams and fertile valleys. The soil is a sandy loam, capable of a high state of cultivation. With a popuiation of 5,000, it is forging ahead as one of the most prosperous of the Pacific slope counties. Glenwood Springs is the county seat, with a population of 2,700. New Castle has 500, and Carbondale 200. When the county was organized, the valuation was $40,000, and the tax 31½ mills. In 1888, the tax was 29½ mills, and the valuation, $2,608,000. The debt is $140,000. There is an inexhaustable supply of coal, the mining of which sustains over 2,000 people. The mines are ten in number, and the work of development is progressing with unabated vigor. The product is largely bituminous, and is excellent for coking. It is asserted by good authority that while the coal deposits are vast the supply of oil in the future will prove the chief source of Garfield county's wealth. The discovery of both coal and oil was made in 1878; but little was done toward development until five years ago. Since the output of coal has been increasing, and with more railroad facilities will soon become enormous. The lack of capital alone prevents the speedy development of the petroleum fields. There are lead ores carrying silver, but they have not been worked with any profit. The building of a smelter to treat the Aspen and Red Cliff ore, will doubtless turn capital in this direction. Twenty-five per cent. of the whole area is available for agriculture, and sixty-five per cent. is grazing land, well stocked with cattle. There are 50,000 acres under ditch, bearing grain, hay and small fruit, the raising of which has been a success. The Denver and Rio Grande and the Midland railroads cross the county, with 100 miles of trackage. Glenwood Springs is one of the most noted resorts for invalids in the country, rivaling in popularity the famous Hot Springs of Arkansas. There are ten large springs and a large number of smaller, the largest of which has an outflow of 4,000 gallons per minute. From the ten springs, there is an outflow of 8,000 gallons per minute. The Yampa, the largest of the group, is located on what was once an island in the river channel, but is now converted into a garden in the midst of which are the mammoth bath houses. These springs are more than twenty times as copious as the Hot Springs at Arkansas. They are alkaline, saline, sulphuric, chalybeate, caloric and thermal. The extreme temperature of the water is 126.4 degrees. The number of grains of solid contents or minerals, to the gallon, varies from 1.243 to 1.254, while the next strongest spring in the United States is at Las Vegas, where there are 60½ grains to the gallon. Thus it will be seen that these springs possess in a marked degree, the qualities of six out of the seven classes of mineral springs in the United States. One of the most wonderful of the springs is that found in a natural cave in the mountain side. The cave is fifteen feet high, and forms a large chamber with solid stone walls. The hot spring in the cave furnishes a natural Russian bath, which cannot be excelled. The sanitarium feature alone will make Garfield a great county. The Denver and Rio Grande, and the Colorado Midland give railroad facilities, and the

latter road with its Utah extension, runs on through the county to the White River, in the northwest. The other prominent towns are Carbondale and New Castle, in the center of the coal bearing fields.

## GILPIN

WAS named after the first Governor of Colorado, the Hon. William Gilpin, now living in Denver at a ripe old age, full of honors. "The Kingdom of Gilpin" is the popular term by which it is known, so called from its exceeding richness in gold and its enormous mineral output from year to year. Geographically it is located a little north of Central Colorado. Its boundaries are Jefferson on the east, Clear Creek on the south, Clear Creek and Grand counties on the west, and Boulder on the north. It is situated directly in the gold and silver belt. Its population is 7,000, of which Central City, the county seat, has 3,000; Black Hawk, 1,540; Nevadaville, 1,185; Russell Gulch, 200. The population is from all parts of the Union. Gilpin was formed from the mountain territory of Jefferson county, working under the provisional government, and was reorganized by the first Territorial Legislature in 1861. Russell Gulch, an unimportant place at present, was one of the objective points for the gold hunters, and later, after the country thereabouts became more thickly populated, as richer strikes followed, that section of the State became the scene of many exciting episodes. Miners' courts promulgated all the law that was recognized at that time, and the justice then dispensed was of a character that demanded respect. From this rough condition was this splendid county hewn. Its estimated valuation now exceeds $4,000,000. Gilpin county is in fact the cradle of Colorado's progress. It was in Gilpin county that Greer Russell and his party from Georgia, found the rich placers in 1859, the discovery of which electrified the country and started westward the tide of immigration. At present there are about 150 well developed mines of gold, silver, copper, lead and zinc, and the county is partitioned into sixteen districts, as follows: Russell, Illinois Central, Nevada, Eureka, Central City, Lake, Enterprise, Quartz Valley, Fairfield, Mountain House, Hawkeye, Independence, Vermilion, Silver Creek and South Boulder. The estimated output from the county from all mining sources is $3,000,000. Among the mines at work are seventy-five, which produce in large quantities. There are twenty-three stamp mills all using Gilpin county concentrators. No mining county in the State has a finer outlook for the future. Gilpin county has a splendid school system. There are twenty-three public schools, not including the High school at Central and the Aloysius Academy. The estimated school census is 1,625, with a total value of school property of $50,000. All denominations flourish and have large edifices for worship. The Colorado Central and the Gilpin County Tramway are the railroads, the former twelve miles in length and the latter seventeen miles. There are two cigar factories, a soda water bottling works and other manufactories in their incipiency. Farming, wherever pursued, is profitable.

There are 18,000 acres of land, with an assessed valuation of $101,720. Over 10,000 cattle were raised last year, on which there is an assessed valuation of $160,304. The total valuation of the county as assessed is $358,482, or an estimated valuation of $1,075,446. The total output for the county in gold last year was $1,250,755; silver, $288,005, or a total value of both gold and silver $1,538,760; value of lead, $70,328; value of copper, $21,000. As a basis for future prosperity, Gilpin county has a supply of mineral that is inexhaustible, and the development that is still going on invites other capital. Here, as in the surrounding counties, mining is on a legitimate basis, and money so employed rarely fails to bring returns.

## GRAND

IS the county of Middle Park, a magnificent stretch of country lying between the Continental Divide on the north, the Front Range on the east and the Williams River Mountains on the south, whilst on the west there opens, most illimitably, the "New Empire" of the Northwest. Grand county is about 50 by 60 miles in extent, dotted here and there with great peaks shooting up thousands of feet. The Grand river with its many tributaries finds its source in the north-east corner, the location of Grand lake, the scene of the tragedy, about seven years ago, when sevreal county officials were killed in a feud over the removal of the records of the county. In 1876 the county was organized from Summit county and at that time the population was about 500. Since then it has prospered, and in the same ratio with other counties has increased its population till in point of valuation it makes a record highly creditable as a stock raising county. In this respect alone, the valuation for stock last year was $230,000; the whole valuation was $358,482. It may thus be seen to what an extent stock raising is pursued. And the reason for it is that the Middle Park is one of the most favorable places in the State for stock raising. Nowhere are the grasses more nutritious, the water better and more abundant, and nowhere in the State is the shelter more complete. Here the feeding ground is protected by the high ranges which almost enclose the county in a circle, and for this reason severe winters are unknown. As a pleasure resort, Grand county has but few equals. The hot sulphur springs in the center of the park, and the numerous retreats among the timbered growth on the hill-side and by the river banks make it an attractive place to the lovers of nature in her most pleasing forms. Coal is supposed to exist in great quantities, and being comparitively a new county, the mountains are undeveloped. In this county there are upwards of 15,000 acres under irrigation, and the growth of cereals is fine. Last year the yield of potatoes was unprecedentedly heavy, while 20,000 tons of hay were cut. Dairying is an industry that has realized well, the product in butter last year being about 10,000 pounds. Sheep pay well. Last year over 35,000 pounds of wool was raised, to say nothing of the supply of mutton sent to the markets of Leadville and other mountain towns. Grand county is favored with good roads, a good school system, and the moral tone of the county is good. The people have push and vigor, and the outlook for the future is promising.

## GUNNISON.

THE Continental Divide forms the boundary line of this county on the east. Gunnison was organized in 1877 from a part of Lake county, and named in honor of Captain Gunnison. There are 4,500 square miles, and most of it mountainous. That portion not rocky is rich in soil and very productive, Mining, ranching and live stock growing are the industries, and these support a population of 5,000 people who are mostly settlers from the Middle States. The valuation of improved land in 1880 was $25,590, and in 1889 it is $242,595. Gunnison City is the county seat, with large and attractive public buildings. There are excellent schools, twenty-one in number, with a school census of 900. The districts from which ore is taken are Tomichi, Quartz Creek, Tin Cup, Elk Mountain, Ruby, Rock Creek and Ceballa. There are two zones, lime and porphyry, or porphyretic granite and gneiss. Gold, silver, lead, considerable iron and some copper are mined. In the gold belt or porphyretic formation the veins are fissures, most of them with quartz and hematite of iron base, with considerable lead. In the lime belt the veins are contacts between different limes or lime or quartzite, all carrying more or less lead. There is a limited area of placer ground and the most of this is in the Tin Cup district on Willow creek. In 1860 the first discovery of placers was made and the lodes followed in 1878. The output for the county is $25,000 in gold; $300,000 in silver; $150,000 in lead and $15,000 in copper. There are three smelters, four concentrators and one sampler. The estimated population dependent upon mining is 2,000. At Crested Butte coal mining is carried on extensively, where more than 500 miners are employed. The granite quarries are the best in the State, and sandstone of superior quality is quarried. The largest iron bodies of the most available character for manufacturing are found in Gunnison county. Here are the finest marble ledges in the country, 100 feet in thickness and in colors of all kinds, the principal quality, however, being pure white. It is from these granite quarries that the stone is being taken for the construction of the State capitol at Denver. The soda, iron and sulphur hot springs at Juanita, eight miles from White Pine, is the resort where gather hundreds of people afflicted with rheumatism, kindey and other diseases. Gunnison City also has pretensions as a summer resort. The capital invested in manufactories is $30,640. There is an iron foundry, also a number of saw mills and creameries for the manufacture of butter and cheese. The inducements to settlers are a rich mineral belt, fine grazing lands, openings for manufactories, fine climate, good schools and society. Laborers get from $2 to $2.40 per day, and miners $3 to $4.50. The grazing interest are yet large and profitable. Eight thousand head is the estimated number of cattle. There are 500 head of horses, and the estimated number of sheep grown for mutton is 4,565 head. The undeveloped nature of the resources of Gunnison county makes it a promising field for the capitalist.

## HINSDALE.

HINSDALE county was created in 1875 from that portion of the Ute Reservation opened for settlement in 1874. The rich mineral counties of Gunnison and San Juan bound it on the north and west, on the east Saguache and Rio Grande, and on the south Archuleta. Mining and stock raising are the chief sources of income. The valuations are $465,650, and the rate of taxation 3 per cent. The county debt is $130,000. Hinsdale is the source of the Rio Grande, and the rivers of San Juan, Gunnison and Rio Piedra rise in the mountains of the San Juan, which range crosses the center. The population is 1,200; with Lake City with a population of 800 as the county seat. They are mostly from the Central and Eastern States, are moderately prosperous and confident of the future. Whilst there are no extremely wealthy men, there are no paupers in the county. There are four public schools, with a census of 250, and a valuation of school property aggregating $25,000. The Presbyterian, Baptist, Christian and Catholic denominations care for the community's morals. Total acres of land available for hardy vegetables and grain, 5,000; the total acreage available for grazing only, 215,000. The county is divided into the districts of Lake, Galena, Park and Sherman, and the general character of the mineral formation is eruptive granite, gneiss, schist, porphyry, the ores are in quartz, lime and slate. The county's output this year is: gold, $10,000; silver, $240,000; lead, $20,000; copper, $5,000, or a total of $275,000. There are in operation twenty-seven mines, two stamp mills, and about 500 miners depend upon the industry for support. With the completion of a branch of railroad and the reduction of freight rates, the mining interests of the county will steadily progress, opening new mines and increasing the production. There are coal and iron, but owing to the lack of facilities, no effort has yet been made to develop them. The present railroad accommodations are only ten miles of road, and this is the property of the D. & R. G. R. R. The advantages, though unimproved, are superior, and consist of hot and mineral springs, fine hunting and fishing. Uncompahgre Peak, near Lake City, rises in magnificent view from the railroad, and two miles distant is San Christoval, the most beautiful lake in the State. Unrivalled advantages for mining investments for the capitalist, and a fine climate for those suffering from consumption and rheumatism, are the inducements offered settlers.

## HUERFANO.

OF the 8,000 population of Huerfano county, one-third is Mexican. Walsenburg, the principal town, has 2,000 inhabitants; La Veta, 500; Rouse, 500; and Picton, 300. Stock, agriculture and mining are the industries. The county was organized in 1860 from parts of Pueblo and Las Animas counties. "Orphan Butte," on the banks of Huerfano river, is the derivation of its name. The cultivated and irrigated lands are worth $50 per acre; other land, $1.25 to $4.00. The county debt is $32,000. Walsenburg is the county seat and is provided with a court

house and jail. The number of acres under irrigation is 15,000, all of which is under ditch. The general character of the mineral formation is galena and carbonates. Spanish Peaks and Sierra Blanca are the principal mining districts, producing gold, silver, lead and copper. The estimated output for the entire county for the year is $150,000. There is no question as to the hidden wealth. There is ore in abundance, and with more railroads, capital will flow in for development purposes. No county in the southern part of the State has a higher outlook. There are eight coal mines in operation, and with an output of 950,000 tons, and employing 2,000 men. The Denver and Rio Grande and the Denver, Texas and Fort Worth railroads, with nine miles of track, do the transportation business. A large number of mineral springs attract the afflicted, and in these respects, the resorts at La Veta and Walsenburg are achieving commendable reputation. The districts have thirty public schools; an estimated census of 22,000; and a total value in public school property of $18,000. All denominations have their following and all are prosperous enough to erect their own places of worship. Huerfano has a great future as an agricultural county. The total acres of grain this year is 2,302 and the average yield will be: Wheat, 13,562 bushels; oats, 17,990 bushels; rye, 725 bushels; barley, 6,070 bushels; and corn, 4,636. The average railway price for these cereals is one cent. per pound. The total acreage in fruit is about 100, which are set out as an experiment in apple culture. Attention is also being directed to the growth of small fruit and truck, and instead of $2,000, the product will bring in a quadrupled return. As the ditches are all private property, there are no lease charges. Live stock raising still retains its hold upon the affection of the people, for the estimated number of range cattle is 11,493, and 5,109 sheep were raised for mutton and wool.

## JEFFERSON.

JEFFERSON county derives its name from Jefferson Territory. It is in the center of the State, half mountainous country, and the other half foot-hills and prairie. The county contains 780 square miles, and is watered by the South Platte, north fork of the South Platte, Bear creek, Clear creek and Ralston creek. In the foot-hills many farms are cultivated where the ordinary cereals do well; these do not need irrigation on account of the rains. The soil in the eastern part is a rich loam, particularly adapted to fruit raising. Ten thousand is the population, of which Golden has 3,000. Morrison, Evergreen, Pine Grove, Buffalo Creek and Arvada are the principal towns. Mining of coal, the manufacture of brick, tile, pottery, sewer pipe, gulch mining, farming, stock raising, market gardening, the manufacture of paper, flour milling, etc., are the sources whence the people get their livelihood. There are no paupers; every one appears prosperous and happy. Created in 1861, it was one of the original counties at the time of the territorial organization. To this fact and to its natural sources is, perhaps, due

its large manufacturing interests. The valuation at the time of its organization was $166,000, with a taxation of five mills. At present the valuation is $4,100,000, with a tax rate of $1\frac{7}{10}$ per cent. There is a bonded indebtedness of $68,000, a floating debt of $50,000; available assets are $20,000. Jefferson county contains thirty-nine districts, with fifty-three public schools. The State Reform School and the State School of Mines are established at Golden. The census is 2,300, of which Golden has 800. Value of school property, $50,000. All denominations flourish. There are 200,000 acres of land available for agriculture, and 150,000 acres for grazing. Total number of acres of agricultural land under ditch 50,000 acres. Silver, gold, copper, lead and iron are the minerals mined; gold in placer and quartz, and silver in lead and copper ores. Gulch mining began near Golden in 1859, and these placers were the scenes of great excitement during those early days. But Golden's prosperity rises not from the mineral in its hills, but rather from its manufactures. The Golden paper mills, a smelter turning out $1,000,000 in bullion in a year, the brick and tile sewer works, a large broom factory, two large and prosperous flouring mills, two brick yards, one of the largest breweries in the State, extensive coal deposits, building stone and lime quarries, lime kilns, fire and other clays, and cement are the sources of the city's wealth. Golden is substantially built, has fine public buildings, county and State; good water works and water system; one railway to the mining region of Central and Black Hawk, the Colorado Central. The Santa Fé road is to build soon. The city has seven churches, a good opera house, good hotel, a public park and every line of business usually found in a flourishing city is well represented and prospering. Iron was discovered in 1873, and coal as far back as 1859. The first exploration was at Coal Creek. Now three coal mines are in operation, with a total output last year of 20,000 tons, and employing 400 men. The industry is doing well, and the prospect for the future is promising. There are seven large irrigating canals and many small ditches; the extent of the former being 120 miles. The railroads are the Denver and South Park—Morrison branch, and the Colorado Central; the Denver, Western and Pacific, and the Denver, Utah and Pacific cross the county. Golden possesses an iron spring of good quality. Bear creek is lined with summer resorts, and the Platte is also well provided. Prominent among these are Troutdale, Evergreen, Pine Grove, Buffalo Park and Beaver Brook. About $1,000,000 of raw material is consumed annually, the product of the country, and the markets for the goods manufactured are New Mexico, Colorado, Wyoming, Idaho, Utah and California. The most natural advantages and nearness to market, a fine climate, picturesque scenery and a low rate of taxation are the inducements the county offers settlers. Grazing flourishes. The estimated number of cattle on the prairie is 10,000 head; horses 1,000. In Jefferson county agriculture and truck farming pays well. There are 30,000 acres of grain this year, yielding as follows; wheat, 20 bushels; oats, 30; rye, 40; barley, 40; corn, 50. The price realized is, wheat, per bushel, $1.10; oats, 75 cents; rye, 65; barley, $1.00; corn, 75 cents. The total number of acres in fruit, 2,000, embracing 21,000 apple trees; apricots, 300 trees; peaches, 350; pears, 4,000; plums, 2,000; cherries, 2,500. The estimated yield

of raspberries this year is 100,000 quarts; grapes, 10,000 pounds; currants, 60,000 quarts; strawberries, 700,000 quarts. Butter to the extent of 350,000 pounds was manufactured, and the realization in truck alone was $90,000. The surplus was marketed in the adjacent mining towns, and in Denver. The average cost of water per acre is $1.00.

## KIOWA.

THIS is another of the eastern tier of counties, and lies between Prowers, on the south; Cheyenne, on the north; and Otero, on the west. It was created April 13, 1889, and has 2,000 population. Kiowa is Indian in its derivation. The soil is a dark sandy loam with a marl subsoil. The population is 2,000, distributed principally in the towns of Sheridan Lake, the county seat, Galatea, Eads, Arlington, Chivington, Towner, and Stuart. Agriculture is the chief dependency of the people and will so continue, with its 1,200,000 acres of land available. The grazing area is but 25,000 acres. Valuations are fixed at $1,250.000, with a tax rate of two and one-half per cent; $16,000 is the debt assumed when Kiowa was created from Bent county. There are fifteen public schools, with a census of 400, and an aggregate value of school property of $4,000. The religious denominations of the county are Methodist, Congregational and Catholic. The streams from which water is obtained are Adobe, Big Sandy and Rush creeks; prairie is undulating with sand hills along Rush and Sandy creeks. The unoccupied public lands available for argriculture are 600,000 acres in extent, and the total number acres unsold State lands, available for agriculture, are 150,000. Deposits of gypsum are found in various parts of the county, also an excellent quality of lime-bearing rock in the Kiowa Valley, where large quarries are operated. A salubrious climate, well adapted to persons with pulmonary diseases, and being located about 100 miles east of the mountains, the county possesses all advantages of a mountain climate, without sudden changes or high altitude. The waters of the Kiowa Springs are remarkable for their health giving qualities and for their adaptability in pulmonary diseases, rheumatism and diseases of the blood. The Missouri Pacific railroad extends the entire length of the county near the center, eighty-five miles in extent, and passes through the Kiowa Valley, a rich section which has rapidly been filled with settlers from Kansas. Here are grown cereals of all kinds; small fruits flourish and vegetables grow in abundance. Blue stem grass grows so thick that ranchmen dispose of it at ten dollars per ton in the Denver markets. Total acreage in grain this year is 6,500 acres, with a yield as follows: Wheat, 20 bushels; oats, 40 bushels; rye, 24 bushels; and corn, 38 bushels. For these, the prices are: Wheat, per bushel, $1.00; oats, 40 cents per bushel; rye, 80 cents per bushel; and corn, 60 cents per bushel. Though Kiowa is a rain-belt county, and has an ample supply of water for all purposes, there will in the future be irrigation. A project is afoot to construct a ditch to water two-thirds of the county. Dairying is becoming a feature. This year,

25,000 pounds of butter were manufactured and disposed of in Colorado Springs and Kansas City markets. There are three sorghum factories turning out a fine quality of syrup which has a ready sale in the Kansas markets. Live stock raising still flourishes. The ranchmen controlling the thousands of grazing acres report about 15,000 head of stock, with ready sales in Kansas City and good prices. The inducements for the settler are: Excellent grazing; an abundance of good water; crops grow without irrigation; free government lands; the dairy, agriculture and stockraising industries and last of all, health.

## KIT CARSON.

THIS is a new county, created in January of 1889, from the eastern part of Elbert county and a portion of Bent. It has 2,169 square miles, well watered with the Republican, Frenchman, South Fork, Little Smoky and Beaver rivers. The country is gently undulating in some sections and in others level as a floor. Farm and stock raising are the industries that support the growing population. Burlington, the county seat, has 300 inhabitants; other towns are equally promising. The estimated school census is 1,200, but the school system has hardly had sufficient time to be organized. The total number of acres available for agriculture are 1,000,000; grazing, 500,000. Railroad facilities are afforded by the Kansas Pacific and the Rock Island, the latter a recently constructed road. For richness of soil Kit Carson county is the equal of any western agricultural county. Although but a few months old, the record it shows is remarkable. There are this year under cultivation 35,429 acres, of which 27,406 acres are in corn; 2,417 in rye; 3,828 in cane; 350 in wheat; 368 in broom corn; 416 in millet; 182 in potatoes; 7 in timothy; 125 in alfalfa; 21 in clover; 250 in oats; 24 in buckwheat; 15 in beans; 9 in rice corn; 4 in flax; 3 in onions, and 5 in barley. There are 2,225 head of cattle and 1,997 head of horses upon the range, these figures demonstrating the fact that instead of being in decline the grazing interests are keeping pace with the general prosperity. At least this is the fact so far as Kit Carson county is concerned. There are a few ditches, but these were constructed by private capital. The bulk of the crops depend not upon irrigation but upon the natural moisture. Rains are frequent, and the time is not far distant when the county will be all under cultivation. It is a part of the "great American desert" so-called, but the authentic record of crops to the acre practically shows how far the popular comprehension is from the truth when it condemned this portion of the State as worthless land. Situated as Kit Carson county is, the people of that section have the advantage of both Denver and Kansas City markets. They have not been slow in realizing this, as the receipts from the auditor's office of the two trunk lines go to prove. The county was named in honor of the famous government scout, Kit Carson.

## LAKE.

THIS county of which Leadville is the center, geographically as well as in point of wealth, lies directly behind the Park Range of the Rocky Mountains. It is 15 by 24 miles in extent; a box-like conformation with the county of Pitkin upon the east, Eagle county upon the north, Park county on the west and Chaffee county on the south, all great deposits of mineral wealth, yet Lake county in the center, yields to none of these the palm. Leadville is known the world over. Great fortunes have been made here in the past, and great fortunes are being made to-day by those developing its wonderful ore bodies. There is little else to Lake county save its mineral, and nothing else need there be, for out of her circumscribed limits has come a vast portion of the State's wealth. Much of Denver's greatness is due the little county on the crest, an honor which Denver is not loth to concede. The discovery of carbonates and the stirring episodes that followed the Leadville excitement are known the world over; stories of those days are yet current topics of conversation, and the "stranger within our gates" so regales himself that to report them or traverse any of the ground would be superfluous; suffice it to say that all that wild conjecture at that day predicted for Leadville has been even more than realized, and though ten years have elapsed, the camp still goes on developing with no signs of depletion. The supply is inexhaustible. The total production for the county last year was: $310,890.84 in gold; $9,061,589 in silver, or a total of gold and silver of $9,372,480; the value of the lead realized was $4,004,065; copper, $1,394, or a grand total of $13,377,940. Up to the present time there is no blemish on the bright lustre of Leadville's record, and the production of lead, silver and gold in 1889 promises to be considerably greater than in 1887 or 1888. For the past six months of the year it was probably $6,500,000, for although it was not very great in April or May, it was unusually large in January, February and March. In addition to the ore shipped to smelters, about 800 tons of low grade is broken and hoisted daily for the dressing works, and 80 or 90 tons daily for the Antioch gold mill. Nearly every blast furnace at the smelting works is running and has been so since January 1, and another smelter is now being built. Roasting furnaces for the treatment of sulphide ores are also being built. Few idle men are seen on the streets, and real estate is as valuable as ever. These are all evidences of Leadville's prosperity.

Mining so overshadows the other industries that one supposes that nothing else is done. But this impression is erroneous. The assessed valuation on 32,457 acres of land with improvements is $1,879,591, estimated valuation, $5,638,773. There are 7,695 acres under ditch, and over 7,000 acres of pasture. Over 2,000 tons of timothy and 4,000 tons of native grass were cut last year to supply the dairy interests; the estimated valuation on manufactures alone, is $49,605, and on cattle $84,000. The estimated valuation of the county not including mining, is $13,708,110. Leadville makes a good market for anything produced within her easy reach. Her population is 15,000, that of the county is estimated at 25,000. The Colorado Midland, Union Pacific and Denver and Rio Grande enter Leadville, and

thence the former crosses the county on its way westward. The Denver and Rio Grande runs north into Eagle county. The natural attractions are the Twin Lakes, a celebrated resort; Crystal Lake and the Soda Springs. Lake county is practically the crest of the great divide, too high for persons afflicted with weak lungs or otherwise debilitated, but those who are acclimated enjoy existence in the rarified air and would not exchange it for any other.

## LA PLATA.

THIS county adjoins the east line of Montezuma, and the Territory of New Mexico on the south; Archuleta and Hinsdale are located on the east, and San Juan upon the north. The Denver and Rio Grande runs from north to south through its center. Durango, as the center, is the county seat. The Las Animas with its tributaries water the rich soil. There are numerous other streams of Mexican names which flow southward. On the western boundary line are the La Plata mountains, from which the county takes its name. There are numerous little towns along the line of the railroad, and the chief occupations of the people are farming and ranching. This county was organized in 1874 from parts of Costilla, Conejos and Lake, and later was itself divided and subdivided till it has been cut down to its present size, sixty by forty-five miles in extent. Its present population is estimated at 1,590, and its estimated valuation at $7,730,520. The latter figures include the mines and improvements, which are estimated at $49,800. Upon 57,724 acres of land the valuation is $270,584, and improvements on this $431,330. There are seventy-six miles of railroad with a half a million valuation. About $150,000 is employed in manufactures, and the cattle, which is the largest interest, is estimated at $1,000,000, there being about 40,000 head upon the range. The assessed valuation on horses is $122,743 on 3,600 head. The estimated number of sheep grown for mutton is 4,000 head; for wool 4,000 head. Farming has taken a foothold here, and because of its fine system for water supply is making great strides. There are 15,000 acres under ditch, and 8,000 for pasture; wheat grown on 1,000 acres yielded 29,000 bushels; oats on 3,000 acres yielded 139,000 bushels; barley on 234 acres yielded 8,000 bushels; rye on 32 acres yielded 1,100 bushels; corn on 25 acres yielded 660 bushels; buckwheat on 50 acres yielded 1,500 bushels; potatoes on 373 acres yielded 56,000 bushels; timothy on 655 acres yielded 1,100 tons; native grass 2,000 tons from 1,500 acres; alfalfa 3,600 tons from 1,100 acres. Small fruits and berries flourish with this result last year: Strawberries, 28,000 quarts; raspberries, 3,900 quarts; gooseberries, 10,000 quarts; currants, 10,000 quarts. This is the product of thirteen acres. The product in butter was 53,000 pounds, and in cheese 1,300 pounds. The wool crop was 2,000 pounds. These figures show a fine condition of soil. The fact that La Plata for so long has been the close neighbor to the Ute reservation has had the effect of keeping away settlers, but now that the Indians have relinquished this reservation, farming will forge itself to the head and La Plata will take its place as the chief farming section of the State.

## LARIMER.

LARIMER is not exclusively an agricultural county, as is generally supposed. Only one-fifth is agricultural. The area of the county is over 4,500 square miles. It is 150 miles wide and nearly 100 miles long, east and west. A narrow strip in the eastern part is agricultural and grazing land and this is well watered by the Cache la Poudre and the Big and Little Thompson rivers, and that portion that is under irrigating canals and penetrated by the Union Pacific has arrived at a high state of cultivation and produces immense crops. The remainder of the county includes a section of the Rocky Mountain range. The foot hills rise about three miles west of Fort Collins, and stretching westward to the western boundary of the county, marked by the Continental Divide, is an immense mountain range, filled with a great variety of minerals and other natural resources. For the past three or four years, a great deal of prospecting and some mining have been done. The net output however, in consequence of the absence of railroad and milling facilities has been insignificant. A sufficient amount of development has been done to demonstrate beyond doubt that there are as rich gold and silver and copper mines in Larimer county as there are anywhere in Colorado. At Manhattan, the ore is composed principally of decomposed quartz, showing a large quantity of free gold. Gold can be panned from the grass roots, a single panful showing colors in the bottom of the pan for a distance of an inch and sometimes two inches. North of Manhattan, in the Poudre Cañon, other rich gold mines have been opened. There is a region just west of Fort Collins, commencing twelve miles from the city and reaching west to North Park and beyond, which is very rich in gold, silver and copper. Over in North Park, sixty miles west of Fort Collins, is the old camp of Teller, which, as soon as railroad facilities are provided, is destined to be one of the great producers. Here is the Endomite mine, upon which large amounts of money have been spent in its development, and thousands of tons of ore lie upon the dump awaiting shipment, which will run from forty to sixty dollars per ton in silver. In the Cameron Pass region much mining is being done and very rich lodes of carbonates are found. With the extension of the Burlington to this region, Larimer county will come to the front as one of the leading counties in the State. Northern Larimer county contains very rich deposits of copper, ore being found near Prairie Divide which runs eighty-five per cent. pure copper. All these camps can be easily reached by standard gauge railroads, which will eventually have terminals at Fort Collins, where smelting and reduction works will be erected and in operation in the next few years. The population of the county is 15,000, of which Fort Collins has 2,500; Loveland, 1,000; Berthoud, 300. It was organized early in the sixties and named in honor of General Larimer, who represented the Rocky Mountain region in the Territorial Legislature of Kansas. The assessed valuation is about $5,000,000, upon an actual value of not less than $12,000,000, and the rate of taxation is about two and one-half per cent of assessed value. The debt is $40,000, incurred by the erection of the fine court house at Fort Collins, the county seat. There are sixty-one public schools; an agricultu-

ral college is established by the State at Fort Collins; and Loveland has an academy; estimated school census, 2,712; value of school property, $84,880. There are thirteen church organizations, each having its own place of worship. The Stout and Arkins stone quarries are among the largest in the State and from these fifty cars are shipped daily, mostly to Missouri river points. About 300 miles of irrigating ditches are built. The railroads are the Colorado Central and the Greeley, St. Louis and Pacific, with about seventy-five miles of trackage. The health resorts are Estes Park, Rustic, on the Upper Poudre, Elkhorn, on Elkhorn creek, and the mineral springs of North Park. The county has foundries, flouring mills, a cheese factory and several creameries, Three hundred thousand dollars worth of raw materials are consumed by the manufactories of Larimer county and the market for the goods manufactured is the entire State. The total acreage in grain is 75,000 acres, with a yield of: Wheat, 25 bushels; oats, 45 bushels; rye, 25 bushels; barley, 40 bushels; corn, 50 bushels. The prices are: Wheat, 75 cents per bushel; oats, 30 cents per bushel; barley, 85 cents per bushel; and corn, 50 cents per bushel. There are 500 acres of fruit, of which 5,000 trees are apple, 200 pear trees, 200 plum trees, 100 cherry trees. The estimated yield this year in raspberries is 10,000 quarts; grapes, 2,000 pounds; currants, 5,000 quarts; strawberries, 8,000 quarts. Over 150,000 pounds of butter were made and 50,000 pounds of cheese. The estimated product of market gardening is $10,000. Cheyenne and other Wyoming towns is the market for this product. The average cost of water per acre per season is about $1.00. The estimated number of cattle on the grazing land is 48,000 head and horses, 12,000 head. Over 17,000 sheep were grown this year for wool.

## LAS ANIMAS.

THE western half of this county is covered with forests; the eastern half prairie. Trinidad is the county seat, with a court house costing $15,000, and a jail $20,000. In the valleys and along the foothills, the soil is a black loafy mould; the soil of the prairie is a clay and sandy loam. The population is about 19,000, of which Trinidad has 15,000; other towns are El Moro, Starkville, Engleville, Sopris and Victor. Coal mining and coke manufacture, wool growing, live stock raising, farming and lumbering are the industries of Las Animas. A large portion of the population is Mexican from New Mexico. In the mines, Italians are numerous. The remainder are Americans from Texas and the Eastern States. Las Animas county was created in 1866, and takes its name from the river Las Animas which flows through it. The Tillotson Academy and the St. Joseph Academy are the institutes of learning, with an adequate number of public schools. Of the population about 1,500 depend upon mining for support. There is one smelter. There is iron ore in abundance. The coal output is 6,000 tons daily. Numerous railways have secured coal lands for future use; and from which those controlled by corporations and individuals, make an area of wide extent. El Moro has 250 coking ovens; Starkville, 100;

Sopris, 100; Victor, 100. Immense quarries of sandstone abound, of varied shades and colors, and from various springs issue oil and gas, and the indications are that underlying the county there is a vast reservoir of oil. There are sixty irrigating canals, and 160 miles of railroad; The Pueblo and Arkansas Valley; Denver and Rio Grande, and the Denver, Texas and Fort Worth. Sulphur and hot springs are found in plenty. Manufactories are in operation, principal among which are, one iron and rolling mill, two smelters, cement works, twelve saw mills, two flour mills, brick manufactures, door and sash works, one grind stone factory and a factory for the manufacture of artificial stone for paving. Since the advent of the Denver, Texas and Fort Worth road, Trinidad has become the leading manufacturing city in Southern Colorado. Business houses and dwellings are being erected as fast as possible, and there is now in the course of erection buildings that when completed will represent in the aggregate of $250,000. The freighting capacity of the railroads is taxed to the utmost shipping coal from the mines, and yet the demand is not supplied. The undeveloped industries of Trinidad are many, as the material is here in abundance, the crude material being silica, fireclay, red ochre, sulphur, alum, etc. The soil surrounding the city is capable of producing all cereals, alfalfa, fruits; in fact everything indigenous to Colorado. On the river bottom, and all other land available for irrigation, the crops are extensive. The valuation for the county is $6,308,927; this includes $2,657,432 on 538,959 acres of land, including improvements; $876,341 on 92 miles of railroad; $1,053,070 on town and city lots; $713,872 on 88,700 head of cattle; $76,553 on 63,723 sheep, and $161,884 on money and credits. The total valuation of the county is $6,308,927; estimated valuation $12,626,781.

## LINCOLN.

LINCOLN is a new county, created April 11, 1889, from Elbert and Bent counties. It is distinctly a stock growing county, agriculture having but recently attained a hold. Hugo is the county seat. There are 2,592 square miles of territory, well watered by the Big Sandy, Rush creek, Adobe creek and many smaller streams and springs. The valleys are moist and the whole surface is covered with rich grasses. The soil is a rich loam and is highly productive. Fifteen hundred is the population, and the towns are Hugo, Arriba, Simon, Bovina and Mirage. Most of the people are stockmen. But little farming has been done although the possibilities are boundless. The assessed valuation is 1,700,000 and the total value of school property is $10,000. From present indications Lincoln county will be a stock raising county for some time, at least until the farmers can prove themselves equal to those of other eastern counties and as capable of redeeming the apparently wild waste of land. For agriculture this is a virgin section with a million acres of available land. Now it is the stockman's paradise, for the range is without limit and the wire fence of the farmer is confined solely to a few valleys. The Union Pacific

and the Rock Island are the railroads passing through the county. Sheep and cattle are the predominating sources of livelihood; this is the first year for anything else. One thousand acres of grain have been sown with promising results, and ten acres of fruit. This year the estimated number of cattle is 12,000 head; horses, 1,000; sheep, 56,000. Inasmuch as the soil is similar to that of Kit Carson and Elbert counties the chances are that the conditions of things will change, and instead of being the absolute authority upon the millions of fertile range lands, the stock industry will take second position and agriculture will take its place and fill the county with a thrifty population and an abundance of wealth. The county derives its name from ex-President Abraham Lincoln.

## LOGAN.

THIS county is one of the northern tier of counties and is a part of what is known as the rain belt, where crops are raised without irrigation. Except in the vicinity of the Limestone Buttes the country is rolling prairie through which the South Platte runs in a north-eastern direction. It is 42 by 48 miles in extent. The county seat is Sterling, on the Union Pacific road, at a point where the Burlington's Cheyenne extension crosses on its westward course. Numerous towns have sprung up within the last few years, and the condition of the country has become greatly improved. It has 5,000 acres under irrigating ditches and 5,000 acres for pasture. On 18 acres last year, 255 bushels of wheat were raised; 7,000 bushels of oats from 350 acres; 37,000 bushels of corn from 2,500 acres; from 136 acres 11,000 bushels of potatoes were raised; native grass cut, 4,500 tons; alfalfa, 900 tons; sorghum made, 400 gallons. Cattle led the list in live stock at 22,000 head; sheep, 17,000; horses, 5,500; hogs, 900. The assessed valuation for the county is $3,326,313, of which $1,460,411 was on 187 miles of railroad, $1,069,820 on 466,194 acres of land and improvements; merchandise, $85,000; town and city lots $221,840; horses, $171,820; cattle, $191,117; sheep, $16,025; money and credits, $32,355. The population is estimated at 1,500 and is composed largely of settlers who have crossed the line from Nebraska and Kansas. The Union Pacific running through the county has been a great help, but the Burlington's Cheyenne extension has given the county a boom which promises to be lasting. The people are enterprising and thrifty, and the increase in the yield in crops promises hopefully for the future. The great agricultural county of Weld is on its eastern border, and the new counties of Sedgwick and Phillips on the east, and Washington county is on the south. For the farmer there are inducements here as elsewhere and farming pays as well if not better in Logan county than anywhere west of the Missouri river, at least that is the testimony of the settlers themselves. The solution of this lies in the fact that the county has the markets of Nebraska and Kansas and is also in direct communication with the markets in Wyoming and in Denver and among the mining towns of this State. Logan county takes its name from Gen. John A. Logan, the volunteer soldier of Illinois.

## MESA.

MESA, together with Delta and Montrose counties, was, prior to 1881, the Ute Reservation. Little was known of it, and that little was contributed occasionally by some daring trapper who in a spirit of venture had crossed into the forbidden territory. But the massacre of Agent Meeker and the annihilation of Thornburg and his command, brought affairs to a crisis. The result was a treaty by which the Indians gave up this section of country and moved to what is known as the Territory of Utah. There are about 1,800 square miles in Mesa county, through which the Grand River flows. The other streams are the Gunnison, Dolores, Plateau and Roan creeks, each with tributaries. The soils are of sandy loam, clay and adobe, extremely fertile and peculiarly adapted to fruit raising. The population is 3,500, of which Grand Junction has 1,500. Fruita is another important town. Live stock raising, farming and coal mining are the industries, and all who are so engaged are thrifty. There are but few settlers who have not improved their condition since locating in Mesa. March, 1883, is when the county was cut off from Gunnison. Then the valuation was $965,600 with a taxation of 32 mills for all purposes. Now the valuation is $1,546,092 with a rate of 35 mills for all purposes. The existing debt is $60,000. As its name implies, a good portion of the county consists of high mesas or table lands. There are twelve public schools in the county, and the churches established are the Baptist, Methodist, Catholic and Congregational. About 200,000 acres of land are available for agriculture, and for grazing purposes about 1,000 square miles. The total acreage of agricultural land now under ditch is about 60,000. There are five bodies of bituminous coal and also beds of iron ore. Good building stone, lime and fire clay are found. For irrigation there are three large canals and about seventy-five small ditches, the former aggregating about seventy-five miles. The railroad of the county is the Denver and Rio Grande, which has a trackage through the county of sixty-five miles. The productiveness of the soil for fruits of all kinds, proximity to large mining districts assuring good markets for all produce, cheap fuel, fine climate all the year around, and 100,000 acres of government lands available for agriculture, are the inducements offered settlers. The total acreage in grain in Mesa this year is 6,000, yielding wheat, 20 bushels per acre; oats, 30; rye, 20; barley, 40; and corn, 35. The ruling price in the market is wheat, $1 per bushel; oats, 40 cents; corn, 60. About 500 acres of fruit are bearing this year, and the estimated yield of strawberries was 12,000 quarts; currants, 500 quarts; raspberries, 640 quarts. The product is all consumed in the county. The average cost of water per acre per season is 25 cents. The grazing interests are not languishing. The reports for the year show 25,000 head of cattle and 4,000 head of horses on the range. Over 7,000 sheep were grown for wool. In the way of native scenery Mesa county is not far behind other counties in the State. The Unaweep is its scenic valley, and is formed by a break in the Uncompahgre plateau, the great divide separating the Grand and Gunnison valleys from the Dolores. This valley is destined to become famous for its rich copper and silver ores.

Some very promising prospects have already been discovered. Assays made of the ore near the surface, give fifty per cent. copper and twenty-five ounces of silver. A very fine quality of iron ore has also been discovered in the district. The word "Unaweep" is an Indian word, meaning "split rock," and for centuries the valley has been a famous hunting place among the Indians. Grand Junction is the principal city on the Pacific Slope. Favorably situated at the junction of two great rivers and midway between the cities of Pueblo and Salt Lake its advantages are apparent. In due time it will become a railroad center. In fact it is already the objective point of all the trunk lines that have thus crossed the range. In this vicinity are the immense coal beds of the Uncompahgre plateau and the Grand Mesa. Starting from the mouth of Roan creek near the county line, at least five immense veins can be traced for a distance of fifty miles. In other localities the beds of coal are vast, and the prospects are that Mesa county is yet to find her true prosperity in the development of this vast source of wealth.

## MONTEZUMA.

IF the history of this county could be written what a wealth of pre-historic story would be unfolded! As it is, from the ruins that dot every cliff side the student of archaeology catches but a faint glimmer of that remote past. The county takes its name from the "Father" of the Aztecs, the ruins of whose homes, though dumb, speak so eloquently. The people of the county have entered into the spirit of their associations and, so far as nomenclature can, have preserved the memories of the ancient race that once peopled its valley by giving to the things of this century the names so identical with the past. Cortez is the county seat, and Mancos and Dolores are principal towns. Montezuma was created from Dolores county, and being young its assessment roll is not yet completed. It has 2,112 square miles, watered by the Dolores, Mancos and San Juan rivers. The valleys are the Mancos, Dolores and Montezuma in which the soil is of the most fertile character, and varies from the rich piñon red soil to the equally fine quality of silicious adobe. But the surface generally is undulating with occasional rocky points and ridges. Agriculture, cattle raising and mining are the vocations of the inhabitants, who are largely from the Missouri and Mississippi valleys. Taking into consideration the fact that things are yet in their crude form, the people generally are well to do, and with development and a railway line, they will, by its furnishing a good market, be in easy circumstances The county has thirteen public schools with an estimated census of 543 scholars and $8,500 in school property. There is a Congregational church at Cortez. The total acreage of land available for agriculture is 500,000. There are 300,000 acres of land available for grazing and 100,000 acres of agricultural land now under ditch. Building stone is abundant everywhere, consisting of red and white sandstone, but there is not much demand for these at present, due to the lack of railroad communication. The quality is very good. Limestone is plenty

and makes a strong quality of lime for building and plastering. Brick material is abundant. There are three canals for irrigation in the Montezuma valley, and twenty farmers' ditches in the Mancos valley. In the former the number of miles of completed and projected canals is 130. The whole county is a vast health resort, abounding in good springs, pure air, even temperature both winter and summer. Fishing on the Dolores is excellent. Whilst the mountains in the eastern and northern portions abound in good hunting of large game; smaller game is common in the valleys and cañons. There are in Montezuma county 680,000 acres of government land open to settlement, which is now occupied by the herds of the cattlemen. The estimated number of stock is 14,000 in the county. The future of Montezuma, however, is in the agriculture, and it is only a matter of a very short time when its valleys and prairies will all be taken up and cultivated.

## MONTROSE.

IN this fertile county, that was an Indian reservation but six years ago, there are upwards of 10,000 acres of grain and 200 acres in fruit. This is but the beginning of a great agricultural triumph on the Pacific Slope. Not only is this confined to cereals, but there is a promising outlook for fruit. The estimated yield for raspberries this year was 2,000 quarts; currants, 1,000 quarts, and strawberries, 25,000 quarts. The products are disposed of in the mining towns and the results are largely remunerative. The average cost of water per acre is $1.50. Montrose county forms a part of the eastern boundary line of Utah, and upon the north are the counties of Mesa and Delta which, with Montrose, were a part of the reservation above mentioned. It receives its name from the tinted glow of the mountain peaks. The soil is fertile and watered by the Uncompahgre, San Miguel and Dolores rivers. The Piedra and the Uncompahgre are the valleys. Five thousand is the population, of which Montrose, the county seat, contains 2,000. The inhabitants are largely agriculturalists, and are a thrifty, enterprising class from the Mississippi Valley. Montrose was organized from Gunnison in 1883 and has a debt of $171,000. There are about fifteen schools in the county, and three churches. On the San Miguel river are some valuable placer mines, but aside from this, owing to the lack of capital, the mineral wealth in the mountains has not been uncovered. More attention is paid to agriculture and sheep raising. Of the latter, more than 25,000 head of sheep were raised this year for wool. The assessed valuation of the county is $1,000,000, of which $217,656 is upon 20,000 acres of land and the improvements. There are twenty-nine miles of railroad, assessed at $168,637. There are 2,000 head of horses at $35,000 valuation; 4,000 head of stock at $33,000; money and credits, $17,000. The mines are assessed at $128,361, which includes the United States gold placers which yielded $12,000 last year in the precious metal. Here, there are plenty of opportunities for the farmer. With 11,000 acres under irrigation, Montrose can produce almost everything; the wheat crop

last year, from 1,500 acres, was 30,000 bushels; oats, from 4,500 acres, yielded 150,000 bushels; barley, from 231 acres, 9,000 bushels; corn, from 700 acres, 15,000 bushels; potatoes, from 300 acres, 46,000 bushels; native grass, 2,000 tons; alfalfa, from 1,300 acres, 2,000 tons; sorghum, from 15 acres, 1,700 gallons. Montrose county produced last year as its wool clip, 120,000 pounds. The live stock is as follows: Cattle, 2,700 head; sheep, 10,000; horses, 3,800; dairy cows, 600; and hogs, 317. The inducements for settlers are a ready market and large and varied crops.

## MORGAN.

ARAPAHOE forms the southern boundary line of Morgan county; on the east Washington and Logan, and Weld county on the north and west. March 19, 1889 was the date it was organized, and Weld is the county from which it was taken. It takes its name as does also the county seat, Fort Morgan, from Colonel Christopher A. Morgan, late of the United States Army, who died in 1866. This was the country formerly known as "Fort Morgan flat," a wide stretch of rolling prairie land. Through it the South Platte river flows, the banks of which are lined with a luxurious growth of cottonwood trees. This valley, as with the Bijou and Beaver valleys, is rich in grasses and is thickly settled. The population of the county is 2,000, and the important towns are Fort Morgan, Brush, Corona and Orchard. Farming and stock raising are the sources of wealth. The inhabitants are an intellegent class of people from Wisconsin, Iowa, Illinois, New York and Pennsylvania. As to wealth there is a uniformity; all are prosperous and no extremes exist. In 1889 the valuations are fixed at $1,000,000 with a taxation of $3 on the $100. There is no county debt. There are seven public schools; a school census of 350 and public school property aggregating $19,000. The Presbyterian, Episcopalian, Methodist and Baptist have places of worship. The total number of acres available for agriculture is 529,000, for grazing purposes 300,000, and the total acreage under ditch is 200,000. Unoccupied public land available for agriculture is about 300,000 acres. About fifteen canals have been constructed for irrigating purposes, agregating 200 miles in extent. The Burlington and Missouri River and the Union Pacific railroads furnish the facilities for seventy-nine miles of territory. Morgan county is within the 100 mile belt from the Rocky Mountains declared to be best for lung troubles. The total acreage in grain this year is 15,000, which from the productive nature of the soil will produce abundantly. The estimated yield per acre is, wheat, 22 bushels; oats, 35; barley, 40; corn, 35. For these crops the ruling price is, wheat, $1.25 per hundred; oats, 80 cents; barley, $1.45 per hundred; corn, 90 cents. The surplus of the product finds a ready market at Denver and Kansas City. Water costs $2 per acre for the season. Whilst farming is gaining the ascendency in the county the grazing interests are enjoying an unprecedented season of good luck. The estimated number of cattle is 20,000 head; horses, 3,000; sheep raised for mutton, 10,000 head; sheep raised for wool, 35,000.

## OTERO.

OTERO is an old Spanish family name, and its present distinguished representative is ex-Senator Otero, after whom the county is named. The county was organized May 3, 1889, being taken from Bent. Valuations are fixed at $2,500,000 and there is a rate of taxation of two per cent. The assumed county debt is $22,000, with county warrants selling at par. The population is 5,000, of which La Junta, the county seat, has 2,000. The other towns are Rocky Ford and Fowler. Otero county being on the Arkansas and Las Animas rivers has plenty of water for the 2,052 square miles which constitute its area. The alluvial and sandy loam soil is rich and agriculture and stock raising pay. There is considerable cottonwood timber. The school census gives 1,000 children, with eight schools, and $35,000 worth of school property. All denominations flourish. Lands available for agriculture are 1,000,000 acres; for grazing 313,280 acres; total acreage now under ditch, 50,000. The unoccupied public lands available for agriculture are 800,000 acres; unsold State land, 200,000 acres. From superficial indications there is coal in abundance but no mining has yet been done, though companies for that purpose are now being organized. A fine quality of limestone good for building purposes has been uncovered and the quarries that have been developed are being operated with profit. There are five irrigating canals with 100 miles of ditch, and the Atchison, Topeka and Santa Fé, Atlantic and Pacific and the Missouri River railroads run through the county with a trackage of 110 miles. The altitude is 4,061 feet; there are two mineral springs, and in other respects the climate is admirably adapted for people afflicted with asthma and lung troubles. Plenty of good land, lots of water, a salubrious climate and a good market are the inducements for settlers. The total acreage in grain this year is 12,000, with a yield of wheat per acre 20 bushels; oats, 40; and corn, 35. These products bring: wheat, $1.25 per bushel; oats, $1.10; rye, 90 cents; corn, 50 cents. Two hundred acres in fruit are bearing, of which 1,000 trees are apple, 300 peach, 100 pear. The yield of raspberries is 200 quarts; grapes, 4,000 pounds; currants, 1,000 quarts; strawberries, 1,500 quarts. In truck growing the gardens produced $30,000, with Pueblo, Leadville and Denver as the markets. Water melons are a staple and Rocky Ford as the centre of the watermelon industry has become widely known. It is here that the State has established an agricultural experiment station. The average cost of water per acre, per season, is $1.50. The cattle industry, too, is thriving; over 60,000 head are on the range; horses, 10,000; sheep raised for mutton, 2,000; sheep raised for wool, 10,000; hogs, 3,000. Otero county has developed faster, perhaps, than any other of the recent acquisitions to the State's county organization, especially in the vicinity of Rocky Ford, where fruit flourishes to a remarkable degree. The watermelon trade is the largest of any section in the south and west. It not only supplies Denver and the surrounding territory, but the best of this luscious fruit consumed in Kansas City and other Eastern cities comes from Rocky Ford. From a small village it has grown to a population of 1,500 within a few months. In a few years it will be the wealthiest and largest town in the county.

## OURAY.

OURAY county receives its name from the chief of the Uncompahgre Utes, a friendly Indian who rendered the early settlers of Western Colorado much service in frequent quarrels with the people of his tribe. On the north of the county Montrose is located; Gunnison on the east, San Miguel and San Juan on the south, and Montrose and San Miguel on the west. Ouray is the county seat, a flourishing town dependent largely upon the mining industry for support. The principal streams are the Uncompahgre river, and Cañon, Red Mountain, Bear, Oak and Dallas creeks, and the Dallas Fork of the Uncompahgre river. All over the county there is timber, forests of yellow pine, spruce, balsam and quaking asp. The surface of the county generally is mountainous. The population is 2,500, engaged almost exclusively in mining. The general character of the mineral formation is gold and silver allied with the baser metals and is found in vertical fissure veins, in the rock known locally as trachyte, and is from 3,000 to 4,000 feet in thickness. The precious metals are also found in veins which cut through the sedimentary and metamorphic rock. The product includes gold, silver, lead and copper, and the districts in which mining is done are Sneffels, Poughkeepsie, Red Mountain, Paquin and Uncompahgre. The first discovery was made in 1875 in the Fisherman and Wheel of Fortune mines and the good luck of the camp has continued ever since. The Denver and Rio Grande railway extends from the north boundary to Ouray, passing through Dallas and Portland, two other flourishing camps. Whilst mining is the chief occupation, some attention is paid to farming. There are 4,000 acres under ditch and 1,600 for pasture. The crops last year were wheat, 1,774 bushels; oats, 50,385 bushels; barley, 1,167 bushels; rye, 120 bushels; potatoes, 11,000 bushels; native grass, 1,100 tons; strawberries, 2,470 quarts; currants, 876 quarts; butter, 1,500 pounds; cattle, 1,700 head, and horses, 400 head. The assessed valuation of Ouray county is $928,647, of which $217,656 is on farming and improvements; $168,637 on twenty-nine miles of railroad; manufactures, $67,000; horses, $35,000; cattle, $33,000; money and credits, $17,000; mines, $128,361. The difficulty with Ouray county for the past ten years has been the freight tariff which was so heavy that to take ore to Denver would consume all that the metal brought. Ouray now has its own concentrators and steam jigs for lead ores, its own lixiviation works for the gray copper and chloride deposits, its own stamp mills for gold ores, and owners of low and medium grade properties have a market for their production which does not consume the bulk of their labor in railway and smelting charges. The output for last year was $1,609,208.79, of which $24,288 was in gold; $1,303,882.92 in silver; $177,885 in lead, and $103,152 in copper. The production this year will be largely increased by the gold discoveries which have occurred within the last few months in hitherto unprospected portions of the county. In this respect the mining industry of Ouray is extremely flattering, inasmuch as in the past attention has been almost wholly directed to the silver producing mines. The hope that there may be another Gilpin county in the State is one of the chief causes which enter into the existing condition of things and give to the people of Ouray the benefits of a substantial improvement in every walk of business life.

## PARK.

IN 1860 the county was organized and since that time has been prosperous. It is named from South Park, which forms the center—a most picturesque and a highly fruitful section of the State. The population is 5,000 from the Eastern States. The towns are Fairplay, the county seat, Alma, Como, King, Howbert, Jefferson, Webster, Dake, Bailey and Hartsel. Stock and hay raising, lumbering and mining are the industries. There being no debt, the rate of taxation is low, sixteen mills for all purposes. Eighteen public schools give instruction to 800 pupils, and the school property is valued at $35,000. Three denominations flourish, Methodist, Catholic and Presbyterian. Three hundred thousand is the acreage of the arable land: Grazing, 600,000 acres; agricultural land now under ditch, 150,000 acres. In 1859 Buckskin Joe made the first discovery of precious metal in Buckskin district. The other districts are Horseshoe, Mosquito, Sacramento, Montgomery, Pennsylvania, Hall Valley, Tarryall, Beaver Creek and Weston Pass. The ores are lime and lead, carrying gold, silver, copper and lead. The estimated output for the entire county this year is $600,000, largely lead. Thirty mines are in operation, and eight smelters, stamp mills, etc., the whole industry sustaining 3,000 people. The future of mining promises well, especially in the lead mines of Horseshoe district. Both coal and iron exist in great quantities, the coal running in vertical veins. There is one coal mine in active operation, but others are undeveloped. The total number of acres of unoccupied grazing land available for agriculture is 500,000; total number of acres of State land unsold, 100,000. In every direction there are vast quantities of building stone, and from the saline wells a desirable quantity of salt is taken. There are 140 canals with 350 miles of irrigation. The Colorado Midland, Loudon and Leadville, and Denver and South Park are the railroads of the county, with a trackage of 153 miles. Along the whole of Platte Cañon there are fine resorts, plenty of scenery and a wealth of shade. The Hartsel Hot Springs afford great attractions. In fact, the whole county is unexcelled as a summer residence. For scenery, fine fishing and hunting, South Park receives favorable attention everywhere. Next to mining, grazing takes place. This year there are 24,000 head of cattle on the hills; 900 horses; and sheep, aggregating 23,000, raised mostly for wool. Farming receives considerable attention. Every product for home consumption is raised, and the farmers are flourishing.

## PHILLIPS.

PHILLIPS county was taken from Logan county in March, 1889. It borders on Nebraska. It derives its name from R. O. Phillips, who has been instrumental in settling up the county. Seven thousand is the population, mostly from Illinois, Iowa and Nebraska and the Southern States. There is no indebtedness save the $7,000 invested in school lands, and the tax is 40 mills. The number of public schools is 39;

school census, 450; value of school property, $15,000. The Methodists Presbyterians, Evangelical, Baptists, Christians and Dunkards have flourishing congregations. Nine-tenths of the entire county is available for agriculture, but in the absence of ditches the county is yet mostly devoted to the range interests. Thus far the success met with in the growth of cereals and fruit is flattering. There are 150,000 acres in grain this year, yielding per acre: wheat, 25 bushels; oats, 20; rye, 15; barley, 30; corn, 40. The ruling price per bushel is: wheat, 75 cents; oats, 50 cents; rye, 40 cents; barley, 50 cents; corn, 20 cents. Three hundred acres of fruit trees have been put in as an experiment. About 3,500 pounds of butter and cheese were made and used in the county. The markets for the sale of products are Denver, Cheyenne and Omaha. There are this year 4,000 head of cattle on the range; 1,000 horses, 2,000 sheep, and 500 hogs. There is no irrigation fee and the water used is not bought. The Burlington railroad's new Cheyenne branch enters the county at the northeast corner; thence to Holyoke, the capital of the county, in the center, and thence westward into Logan county. Frenchman's creek flows from west to east, passing Haxtum, Paoli and Wakeman on its way. Amherst, Everson and Bryant are small towns in other portions of the county. Inasmuch as the character of Phillips county is the same as the flourishing counties to the west and south, the presumption is that next year, when the experimental crops have been successful as they will, the people will see a greatly increased population. It is in the direct track of immigration and it requires only a few good crops to attract the eye of the settler.

## PITKIN.

PITKIN county lies east of Lake county, from which it is divided by the Saguache mountains. North of Pitkin are the counties of Eagle and Garfield, Mesa and Gunnison form the eastern and southern boundary lines. The Elk mountains range the western portion, and between these mountains and the Saguache mountains the Cimarron river flows, fertilizing a rich valley. Aspen in the center is the county seat, and is the competitive camp with Leadville in the production of precious metals. From a mining camp Aspen has within a very short time been metamorphosed into a beautiful city, built upon the mines that were opened in the town's early history. Its store of wealth is in a contact in lime formation represented upon Hayden's chart by the line of silurian upheaval and outcrop. The contact between the lower lime, known as magnesian lime or dolomite, and the overlying stratum of pure carbonate of lime is the mineral bearing zone. The lode is known to be forty miles in length, and is traced in a north and south course entirely across Pitkin county. Development begun on the mountain sides near Aspen, has been extended northward to the top of Smuggler mountain, and southward to Tourtellotte, making a producing area of three and a half miles. It can be readily understood that vast possibilities lie before Pitkin county. Besides the

resources of this lode there are the mines of Maroon Creek district, the fissure veins in Conundrum gulch and about Ashcroft, the rich leads of Lincoln gulch, the valuable gold deposits of Independence, the copper ore beds on Snow Mesa and the undeveloped section on Rock creek. To give in detail the great wealth that has been extracted from Aspen and vicinity within the year would fill many pages. Suffice it to state that in 1888 the total production was $7,954,075, of which $783,032 was in lead, $12,716 in gold and $7,158,327 in silver. There are hundreds of mines to be developed that will produce equally as well as any that have yet been developed. The great area has only been partially prospected, and thousands of acres are open to location by prospectors. Even in the sections which are most thoroughly covered by locations there are new discoveries occurring almost daily. Pitkin county is also rich in coal, iron, marble and in agricultural resources. The entire valley of the Roaring Fork and its many tributaries are susceptible of irrigation. There are 2,724 acres under irrigation, and the products last year were: wheat, 932 bushels; oats, 32,082; barley, 337; potatoes, 27,778; native grass, 284 tons; butter, 2,000 pounds. For these products good prices are obtained, and the supply even at high figures does not equal the demand. As a place of abode Pitkin county offers many inducements aside from its vast repositories of wealth. The city of Aspen itself has an altitude of 7,700 feet, which fact enables the work of development to proceed throughout the year without loss of time to the wage earner. The present population is 8,000, and the city is supplied with electric lights, efficient water works, banking houses, public schools, churches and ample railroad, telegraph and telephone facilities. The Roaring Fork river can be made especially valuable for its water power, and at a no distant day this power will be utilized for manufacture and for mineral development. The completion of the tramway that is now being constructed to Tourtellotte park will aid materially to Aspen's progress, as in its construction all the mines in the vicinity will be afforded the facility of a cheap and expeditious transportation instead of the present tedious and costly system of jack packing. Pitkin county was but recently created, and since it has developed wonderfully. It receives its name from Governor Pitkin, now deceased, and if its future is to be judged by its past record it will continue to be one of the greatest wealth producers in the State.

## PROWERS.

PROWERS county is in the extreme southeastern part of the State and is bounded west by Bent, north by Kiowa and south by Baca. On the east is Kansas. Being less than a year old there are no county buildings. It has an area of 1,658 square miles, through which runs the Arkansas river. The surface is slightly undulating, of a sandy loam, and fertile, especially in the valleys. The population is about 3,000, and the principal towns are Lamar, the county seat, Grenada, Holly, Carlton and Mulvrane. The people come from all portions of the country and engage in farming and stock raising. From the time of John Prowers, the first

white settler, after whom the county is named, to 1889, when created, it has ever been a fine grazing section. The assessed valuation is $1,500,000, and about three per cent. taxation, outside of municipal corporations. The debt assumed as part of the debt of Bent county, of which it was a part, amounts to $10,000. There are eighteen public schools, with 600 pupils, and $50,000 in school property. There are three churches. Almost the entire area of the county is agricultural land, available for agriculture, and the ditches projected, when completed, will cover at least 200,000 acres. There are five canals with about 150 miles of irrigation. The Atchison, Topeka and Santa Fé runs thirty-eight miles through the county. Farming, under irrigation, and stock raising are the inducements to settlers. This new county has the land office at Lamar, which will prove a powerful factor in filling up the country. There is plenty of water in the Arkansas, the soil is fertile upon the plains, and the construction of irrigating ditches will take from the cattlemen these wide feeding grounds and convert them into beautiful and well paying farms. The second town of importance is Grenada, on the Arkansas and at the mouth of Grenada creek. It is but eight miles from the Kansas line and is already receiving additions to its population, drawn from that State into the Lamar land district. This county has grown within the last four years. Prior to that time, it was but a dreary waste, indeed.

## PUEBLO.

PUEBLO county is sixty-four miles in length and the same number in breadth. Through it the Arkansas river flows from west to east. The other rivers are the Huerfano and St. Charles, with innumerable small creeks and springs. In the center of the county is situated Pueblo, the county seat and next to Denver the largest and most important city in the Rocky Mountain region. Situated as it is on the Arkansas river, the city of Pueblo is the threshold over which passes the volume of inter-mountain travel and the vast commerce between the Pacific Slope and the cities on the eastern side of the range. It is a city of great possibilities. The climate is healthful. Surrounding it is a large area of rich and productive lands. And last but not least is the importance she bears as a railroad center and a city of manufactures. Pueblo is the pivotal point of the Denver and Rio Grande system, whence its lines radiate north, south and west, penetrating the mountain passes and reaching every mining camp, in Central and Southern Colorado, Utah and New Mexico, and by connecting lines, Old Mexico, Arizona, California, Nevada, Idaho and Montana. Lowest in elevation, the city is reached from every point by down grade. It was this fact that induced the Colorado Coal and Iron Company to establish here their great iron and steel works and the Pueblo and Colorado smelting and refining companies, and it is this fact that will multiply institutions of this kind. Pueblo county is bountifully provided with resorts for pleasure and health. There are magnetic springs at Pueblo of certain relief in instances of Bright's disease, liver complaint, urinary, skin and blood diseases, rheumatism, paralysis and dyspepsia. The altitude is about 4,000 feet, and pro-

tected as the county is by the Greenhorn range on the west and north-west, there is no severe winter and all the year around the climate is pleasant, equable and life sustaining. According to the record kept at the United States signal service station in the vicinity of Pueblo, there were only seventeen days during which the sun was invisible from January, 1873, to September, 1878, a period of nearly five years. In point of population by comparison, the public school systems are greatly superior to Eastern educational centers. The daily attendance is about 4,000 children, which does not include the well patronized private institutions of the Sisters of Loretto, the Methodist College and the Catholic free school. The Atchison, Topeka and Santa Fé, Missouri Pacific, Denver, Texas and Fort Worth, Denver and Rio Grande, Colorado Midland, Denver, Rio Grande and Trinidad, and the Rock Island enter Pueblo and add materially to the city's wealth. But it is the manufacture interests that make Pueblo county what it is. Within easy reach are all the essentials required—coal, iron, petroleum, etc., and that, too, cheaply. There is the Pueblo Smelting and Refining Company, the oldest lead smelter in the Arkansas Valley, with a capacity of 12,000 tons of ore per month and the turning out of 4,500,000 to 5,000,000 ounces of silver and gold per year, and 150 car loads of pig iron per month, besides manufacturing lead pipe, bar lead, type metal, ingot copper, etc. The works of the Colorado Smelting Company are on the mesa between the town of Bessemer and the city of Pueblo, and their capacity for treating is 200 tons of ore per day and the production of 10,000 tons of bullion per year. The Colorado Coal and Iron Company's iron and steel works near Pueblo cover an area of sixty acres of ground, and are the largest works of the kind in the country. The other leading manufactures are, the Newton Trunk Company, the Pueblo Foundry and Machine Shops, the Pueblo Public Sampling Works, the Pickle, Vinegar and Canning Company, and the Crown Flouring Mill. In the western part of the county agriculture is prospering. There are at least 700,000 acres of available land for irrigation and the government land covers an area of 605,000 acres. The lands of Pueblo county from all sources are: private grants, 173,678 acres; school lands, 69,760; State indemnity selected land, recently approved, 130,240 acres, formerly approved 7,320; entered lands, 512,271; vacant government lands, 605,060; total, 1,498,329. There are 125 ditches now in use, aggregating 360 miles, with 7,000 acres under cultivation and 25,000 acres to be irrigated. The total acreage in grain this year is 15,000, with a probable average yield of wheat, 20 bushels per acre; oats, 40; rye, 20; corn, 20. The ruling price in market in wheat, 85 cents per bushel; oats, 30 cents; corn, 60 cents. There are 2,000 acres in fruit, all bearing this year, principally in apples and plums. The yield in strawberries was this year 25,000 quarts; grapes, 6,000 pounds; currants, 200 quarts. The dairies yielded 60,000 pounds of butter, and the estimated product of the market gardens exceeded $20,000, all of which was realized in home consumption. The cattle industry reports 50,000 head on the range, and 10,000 head of horses. Over 40,000 sheep were raised, of which 20,000 were used for mutton and the remainder for the wool clip. The assessed valuation for Pueblo county is $11,025,000 or an actual valuation of $22,000,000, and the tax rate on this is 19½ mills. The existing debt for all purposes is $375,500. In the city of

Pueblo there are many fine buildings, which include the Court House, three stories in height, the State Insane Asylum, the County Jail and a poor house costing $85,000. In the valley immediately tributary to Pueblo there will, when the projects are completed, be seven canals which will irrigate 440,000 acres of land. The Arkansas Valley as it spreads out through the country presents numerous orchards and farms. Dairying is steadily growing in importance. With its great supply of water there is every reason to hope for Pueblo county a great future, second to no other county in the State.

## RIO BLANCO.

RIO BLANCO, or the "White river" country, is the northern half of Garfield county. It was here the late Ute trouble occurred, at Rangely, sixteen miles from the Utah line, and Rio Blanco, then Garfield, was also the scene of the Ute uprising, when Agent Meeker was massacred and Thornburgh and his command annihilated. Until within a few months, the earth works, the bones of animals and the trappings and paraphernalia of the troops were heaped upon the ground where Thornburgh was ambushed, but the rapid increase of population and the settlement of the county have converted the battle field on White river into fruitful farms. A rough monument erected by the United States Government alone marks the place. Rio Blanco county contains 3,000 square miles. It was created last winter from Garfield county, and the valuation this year is $900,000. The tax rate has not been fixed. The debt assumed is $40,670. The population is 2,000, of which Meeker, the county seat, has 500. The towns of White River and Thornburgh have been laid out and platted. At the heads of all the streams and in the valleys there are forests of pine, spruce, hemlock and fir. The coal hog-back runs from south to north, and at the head of the White river there are some mountains. In other respects, the surface is rolling and affords excellent opportunities for ranching and stock raising. The total acreage of land available for agriculture is 50,000; for grazing, 1,500,000; agricultural land now under ditch, 15,000; unoccupied government land available for agriculture, 15,000. In 1883, low grade silver was discovered in the eastern part of the county, but owing to the lack of railroad and smelting facilities, the prospects were never developed. The great coal belt of Crested Butte and New Castle extends through the county. Four mines are in operation, but there being no outlet, the coal is mined for home consumption only. In some places the veins are thirty feet thick, and in appearance, there are from twelve to fifteen of these, overtopping each other. It requires only the advent of the railroads to develop greatly these vast bodies. Large quantities of lime are found, and one kiln, near Meeker, produces all that can be used at present. Oil has been discovered and companies are forming for the purpose of development. There is also a good quality of building stone, and all the brick that is required is made in the county. The school census is 275, with seven schools, and school property to the value of $15,000. The climate is about the same as in Denver, and springs of salt, iron and soda abound, though undeveloped. Just

now, among sportsmen, Rio Blanco is the favorite county for game and fish. It is a remarkably rich country because of its loamy soil. The agricultural lands equal any in the State. Here the grazing is perfect, and there being an unlimited supply of water, the attention of new-comers is directed to Rio Blanco as a desirable place for settlement. It is believed that the population this year will be doubled. One of the ditches to be built will distribute water over the whole of White River mesa, opposite Meeker. As a result of the construction of this and other ditches, at least 50,000 acres will be brought under cultivation.

## RIO GRANDE.

THE county of Rio Grande receives its name from the river which flows through it. On the north is Saguache county; on the east Costilla and Conejos; on the south Conejos, and on the west Hinsdale. Del Norte is the county seat, with a population of 1,000. On the west side of the river are heavy forests of pine. The soil is a rich, sandy loam and very productive. There is a population of 4,000 in the county, and the other important town aside from Del Norte is Monte Vista. Farming, stock raising and mining are the industries, and the people are prosperous. Rio Grande county was created from Conejos county in 1874, at which time the valuation was $327,865; the valuation to-day is $1,482,320 with a tax of 5 mills. The debt, based on constitutional limit, is $70,000; including the scrip actually out it is estimated at $170,000. The Catholics, Methodists and Presbyterians have churches and one Sabbath school for each denomination. Summitville and Jasper are the principal mining districts of the county and the ores mined are gold, silver and lead. The first discovery was made in 1869, at Summitville. At Summitville alone there are four stamp mills. Mining, however, is in its infancy, and from successes in the past the people hope much of the future. About forty-five miles from Del Norte are bituminous coal beds which have been worked for a long time, and with profit. The coal is not confined to this section alone; in various parts of the county coal abounds and it is the development of these banks, to supply the great San Luis valley, that will prove of vast importance. Rio Grande has numerous varieties of building stone, and the chances for capital here are abundant. Wagon Wheel Gap, Del Norte and Shaw's Springs are the natural attractions; well supplied with hot springs and scenery the most picturesque. There are 100,000 acres of land under improvement, and the valuation of this is $364,685. With its sixty miles of railroad the county realizes upon its valuation of $331,576. The total valuation of the county is $1,482,320, which sum includes for mines $125,565. In the county there are 12,000 head of sheep; cattle, 8,000; horses, 3,000. Last year the mines realized in gold $17,000, silver $5,000, or a total product of $22,000. In Rio Grande county there are 25,000 acres under ditch and 19,000 for pasture. From 2,500 acres, last year, 58,000 bushels of wheat were raised; 79,000 bushels of oats from 3,100 acres; 11,000 bushels of barley from 300 acres; 55,000 bushels of potatoes from 314

acres; over 5,000 tons of native grass were cut. Small fruits were raised as follows: strawberries, 1,292 quarts; raspberries, 145 quarts, and currants, 355 quarts. Over 32,000 pounds of butter were made; over 63,000 pounds of wool were shorn, and the live stock produced was as follows: dairy cows, 506; horses, 1,139; cattle, 5,978; sheep, 8,950. The markets in the mining towns consume the product, and the prices are good. These are the inducements offered by the people of that county to new settlers.

## ROUTT.

THIS magnificent stretch of country is ninety by fifty miles in extent, and is situated in the extreme northwestern portion of the State. The Park range of the Continental Divide is the eastern boundary; upon the west lies Utah; upon the north Wyoming, and Rio Blanco and Eagle counties on the south. It is the largest grazing county in the State, and the last foothold of the cattle barons before the advancing hosts of farmers and less pretentious ranchmen. Routt county takes its name from the assistant postmaster general under Grant, who subsequently became governor of Colorado, Hon. J. L. Routt of Denver. No other county is so well watered. The multitude of springs forming creeks in the eastern part and increasing in volume to rivers in the center, empty into the Yampa or Bear river, The largest of these tributaries are the Green and Little Snake rivers, and so well watered is the county that hardly a foot of the rich prairie is not capable of growing good crops. The highlands are the Danforth hills, Piñon and Midland ridges on the south, the Escalante hills on the west, and the Elk Head mountains on the northwest. The principal town is Hahn's Peak, the scene of considerable excitement over the late gold discoveries in that region. There being no railroads in the county the population is sparce, but with the incoming of the Denver and Leavenworth Short Line, which is to enter the county at Steamboat Springs, a rush of settlers is anticipated. Upon the broad acres there is room for those who come and plenty of land for all. This county is the least developed of any of the counties, and in natural resources is the equal of any in point of future development. The valuation for last year is $885,393, of which $125,308 is upon lands and improvements; $200,000 on horses, and $510,000 upon cattle. There are upon the range 50,000 head of cattle; 10,000 head of horses, and 10,000 sheep. The number of acres under irrigation is 2,662; the number of acres for pasture, 15,200. Crops were grown last year as follows: Wheat, 602 bushels; oats, 8,500; barley, 61; rye; 22; corn, 275; potatoes, 5,184; native grass, 5,435 tons; alfalfa, 10; wool shorn, 44,560. Routt county was organized in 1877, having been taken from Grand county. Three years later its population was only 140. Underlying this county there are great beds of coal, and at various places oil is apparent upon the surface. Hot springs are found in abundance; the most notable of these being at Steamboat, an embryo resort at the foot of the Park range. Here there are more than eighty springs, the waters of which are strongly recommended

by all who have visited them. Steamboat Springs some day will be a great resort, and it is believed that already the Chicago, Milwaukee and St. Paul Company have their eyes directed thence for their trans-continental line.

## SAGUACHE.

SAGUACHE is one of the oldest counties in the State. In 1870, its population was 300, ten years later the population had increased to 2,000. It is now estimated at 3,000. Mining, stockraising and farming are its industries. The Sangre de Cristo or "Blood of Christ" range forms the eastern boundary; on the south are Costilla and Rio Grande counties; on the west, Hinsdale and Gunnison counties; and on the north, Gunnison, Chaffee and Fremont counties. A large portion of the county is a fertile valley, through which the Saguache river runs, and drains the mountain ranges on either side, only to disappear in the mysterious lake of San Luis, six miles below the boundary line. Saguache, in the center of this valley, is the county seat; Bonanza is an important town. In the southeastern part of the county is the "Luis Maria Baca Grant No. Four," a tract of land 930,000 acres in extent. The mining industry is promising, though development is slow, owing to the dearth of facilities. Last year, the output was $76,534, of which, $2,847 was in copper, $9,836 in lead, $4,220 in gold, and $56,629 in silver. Agriculturally, the county is prosperous. There are 74,400 acres under irrigation, 117,075 acres in pasture, and the crops raised last year were: Wheat, 24,696 bushels; oats, 106,332 bushels; barley, 14,260 bushels; native grass, 28,630 tons; alfalfa, 769 tons. The butter produced exceeded 4,500 pounds. There were 57,000 pounds of wool shorn. The cattle exceeded 26,000 head; sheep, 18,000 head; horses, 35,000 head. The assessed valuation on lands and improvements was $667,816; on fifty-six miles of railroad, $426,083; cattle, $363,068; horses, $154,773; sheep, $19,800, money and credits, $18,970; mines, $17,582. The valuation of the county is $1,906,115. The scenery of Saguache is notably fine and possesses in one particular, one of the most remarkable feats of engineering skill. Reference, of course, is made to Marshall Pass, over which the Denver and Rio Grande road climbs in its ascent over the top of the Continental Divide, 10,852 feet above the level of the sea. Whilst there are no established resorts for invalids, the entire county is desirable and in the valleys are found an abundance of shade, mineral springs, and a condition climatically calculated to prolong life to a good old age. Just now, the cattle industry is the most thrifty of the three industries upon which Saguache county depends for support. There are coal and oil, but undeveloped, and in the hills a fine quality of building stone is excavated. There is no dearth of timber and natural resources in other respects, and it only requires capital and railroad connection with the markets to make the county exceedingly wealthy.

## SAN JUAN.

THE "Silvery San Juan" has been a theme for a long time in the guide books of the State, but not without merit, however. It not only sounds well rhetorically, but in verity the country is all that the title implies. Located as it is in the center of a rich mineral deposit the development in this respect has been rapid. Gold and argentiferous galena are the metals, and the formation is porphyry, trachyte, granite and schist. The first discoveries were in 1860, but being remote from railroad facilities the county's development has been slow. As this difficulty has now in a measure been overcome, progress has been more satisfactory. The estimated output for the county this year from the districts of Eureka, Las Animas and Red Mountain, will be $2,500,000. In this territory there are about sixty mines in operation, five stamp mills, two samplers, and one concentrator. Of the population of 2,500, 1,800 depend upon mining for support. The whole community, however, is prosperous. The people for the most part are foreign born, from England, Wales, Ireland and Germany, and as a rule they are thrifty. San Juan county was created in 1876, the year Colorado became a State. Silverton is the county seat and has 1,500 population. The assessed valuation is $1,000,000, with a tax of four per cent. The debt is $200,000. The estimated school census is 350, with school property to the value of $10,000. Congregational and Catholic are the denominations. The assessed valuation aggregates $999,400, of which $88,996 is on railroads; $141,392 on town and city lots; $297,144 on mines. The only assessment on improved land is $550, which shows that there is no cultivation, and that edibles are brought into the county from the surrounding sections. It is exclusively a mining country, and it makes no pretensions to anything else. There is some iron, a great deal of building material, but no shipments of either are made. The peak of King Soloman is north of the center, and the peaks of Sultan and Engineer mountains rear their heads in the southwest. The whole county can not be excelled in picturesque beauty. The Denver and Rio Grande extends from the south to the north, tracing the Las Animas river to its source near Animas Forks. There is a quantity of arable land upon which hardy grains and fruits may be grown, and in the valleys and among the timbered land there is excellent pasture. There is plenty of water and ample room for a large colony of settlers, and it is more than probable this year that the San Juan will make some effort to fructify this virgin field.

## SAN MIGUEL.

SAN MIGUEL takes its name from the river the source of which is in the valleys southeast of the San Miguel plateau. The county is about sixty miles in length and twenty miles in width, with Utah as its western boundary line, and Ouray and San Juan counties bounding ing it on the east, Montrose upon the north and Dolores county upon the south. Its population is 3,000, of which Telluride, the county seat, has

1,500. The other important towns are Ophir and Placerville. Mining, stock growing and farming are the industries. The county was created in 1885 from Ouray county. At that time the assessed valuation was $16,841; this year the valuation is $814,445. In 1876 mineral was first discovered, and the county has since been organized into the districts of Upper and Lower San Miguel, Turkey Creek, Iron Springs, Trout Lake and Mount Wilson. The resources are gold, silver, lead, copper and coal. Last year the output from these mines aggregated $1,555,132, of which $424,706 was gold, $1,095,693 silver and $34,732 lead. This year it is estimated that the output will reach $2,000,000, the product of eighteen mines. In 1881 discoveries of coal were made and as development has progressed great bodies have been uncovered. The total acreage available for agriculture is great, and double this is the acreage for grazing. This area is well watered, has plenty of timber and a soil remarkably rich. The cattlemen report 10,000 head of cattle upon the grazing grounds, 400 horses and 10,000 sheep. In the northern part of the county is a tract known as the Shenandoah valley, embracing 32,000 acres. Its soil is of a reddish brown of great depth and exceeding richness, and is being rapidly filled with a thrifty class of settlers. The whole county, as a matter of fact, is rapidly developing, and the stock industry especially is thrifty. The assessment on cattle alone, last year, shows $129,450 on 9,439 head, the minimum figures. The total valuation of the county was $834,765, on an estimated valuation of $2,404,295. According to the assessor's returns $54,800 was the value placed upon mines; $42,200 on 2,525 acres of land and $219,670 on the improvements; $63,165 on merchandise; $185,205 on town and city lots; $18,045 on money and credits; $8,450 on household property. The placers of the San Miguel river are wonderful. They are rich in the extreme. As the industry progresses under the improved condition of a more thickly populated community, this supply is rather increased. Farming, though yet in its infancy, is making satisfactory progress. Last year there were reported 185 acres under ditch. Wheat, oats, barley and rye grow well and potatoes are especially productive. Several large ditches are in course of construction, and the projects, when completed, will bring under cultivation the entire territory between the Uncompahgre Plateau and the Utah line.

## SEDGWICK.

IN the extreme north-east is situated the new county of Sedgwick. The area is 576 square miles, with Julesburg the county seat. The county was created in 1889 from Logan county, and named in honor of General Sedgwick. The population is 2,500, of which Julesburg has 800, composed mostly of settlers from Nebraska and Iowa. Agriculture flourishes here, the soil being a sandy loam with a gently undulating surface. The county has twenty-four public schools, a census of 500 and public school property to the value of $15,000. Denominationally the people support the Congregational, Presbyterian, Methodist, Catholic and Evangelical churches. The total acreage of land available for agriculture, 300,000, available for grazing, 68,000; unoccupied government land available for agriculture, 45,000;

school land, 12,960. The Julesburg short line of the Union Pacific runs through the county a distance of forty miles. For phthisis the climate is excellent, the atmosphere being dry and invigorating. This, with good soil, plenty of rain, an abundance of free land, low rate of taxation, is the inducement the county offers settlers. Cattle raisers report their industry in good condition, with 5,000 head of stock upon the range. The total acreage in grain this year is 90,000, with a probable yield of wheat, 20 bushels to the acre; oats, 45; rye, 17; barley, 15, and corn, 40. The average ruling price at the nearest market is, wheat, 75 cents per bushel; oats, 25 cents; rye, 50 cents, and corn, 20 cents. The dairymen have produced 24,000 pounds of butter this year, and 1,500 pounds of cheese. From Sedgwick county the markets of Denver, Cheyenne and other points on the railroad are supplied with some of the finest produce. It is in the rain belt and as the moisture has been abundant the crops are large. There is a strong probability that the railroad company will locate shops at Julesburg and make that city a division point. A grain elevator will probably be built this fall and a mill next spring. The farmers are all jubilant and the prospects are that this year so great will be the boom that thousands of settlers will be added to the county's population. Marks Butte is the highest point of land in the county. The water for irrigation when used is taken from Platte river, but being in the rain belt crops flourish without irrigation, and the products raised are equal to any in the neigboring States of Nebraska or Kansas.

## SUMMIT.

WITH an altitude of over 7,800 feet for the whole county, there is little else to do in Summit except to mine. As the name implies, and the geographical location confirms, Summit county is upon the top of the mountain range, with Gray's Peak at one end and Lincoln Peak at the other. It was one of the original counties, and even in 1860, a year or more after the gold deposits were discovered, was rated as a great mineral section. The minerals are gold, silver, lead and copper. Gold is found in veins in connection with other minerals; also in native purity varying in size from the brightest flakes to nuggets of eight or ten pounds. The placers themselves are great producers. Silver is found with lead and copper in deposits rather than in fissure and contact veins. The principal districts are Blue River, Ten Mile, Snake River and Rock Creek. The output this year will approximate $2,000,000, of which gold will value $800,000; silver, $600,000; lead, $500,000; copper and zinc, $100,000. There are about seventy-five mines in operation and about twenty mills and concentrators. The population dependent upon mining for employment exceeds 2,500. Summit county has a population of 3,000, of which Breckenridge has 1,600, Dillon 300, Kokomo 250, Robinson 200, and Montezuma 200, and the people are from every section and are for the most part active and enterprising. Being mountainous the scenery is picturesque; in summer the weather is pleasant; there are plenty of drives and good fishing; the highest peaks and ranges accessible; good water and good hotels—all in all the entire county

is a most attractive resort for the tourist. For the invalid, however, the altitude is hardly suitable, and sufferers should keep in the valleys and lowlands generally. Railroad facilities are afforded by the South Park branch of the Union Pacific, and by the Denver and Rio Grande. Down the Blue river ranchmen feed their herds. Here grass most nutritious is found, and there being plenty of good water, stock is fattened upon the range for the market. The public school system is good, there being twelve schools well well patronized. Three denominations flourish, the Catholic, Methodist and Congregational. Last year the total value of ore produced in this county was $1,049,204, of which $282,209 was in gold; $650,884 in silver; $116,059 in lead and $51.93 in copper. The assessed valuation for the year was $1,065,290, of which $83,427 was on mines; $1,775 on acres of land; $510,661 on railroads; $26,955 on horses; $28,214 on cattle; $3,950 on money and credits. Both the Union Pacific and Burlington have lines surveyed over the range west of Longmont, with Dillon as an objective point. The former company has only about twenty miles to build to make her connection complete between the East and West slopes, thus giving to Denver a direct outlet westward. The other towns dependent as they are upon mining, have no ambition save that of mineral development.

## WASHINGTON.

THE county of Washington, in the northeastern portion of the State, is in the rain-belt area of Northern Colorado. It was organized in 1887, with an assessed valuation of $900,000. In April, 1889, it was divided, and from the other portion Yuma county was created. The assessed valuation of Washington county for 1889, is $1,800,000, with less than one-half as much territory as in 1887. The total indebtedness is less than $6,000, and the tax rate is 13 mills. The soil cannot be excelled by any State in the Union. It consists of a top soil of a light brown, turning darker after being broken, and a subsoil of an inexhaustibly fructifying nature. The Platte river and tributaries have an abundance of water, and for wells a copious supply is obtained at a depth of thirty feet. Besides, there are natural springs. The crops of small grain have done splendidly this year, and the large quantities of trees that have been planted are very promising. The population of this county is 6,000, of which Akron has 1,000; Otis, 350, and Hyde 250; and the people are all of a thrifty class from the New England States and Nebraska. Akron, the county seat, is a division town on the Burlington and Missouri railroad, with a good hotel and a large railroad population. In addition to farming there is the cattle industry from which the people derive great benefits. For this business the county is especially adapted. The soil is covered with a medium growth of buffalo grass, with hills extending along the southern border of the county. Among these hills are valleys, in which large quantities of grass are cut each year, and they afford excellent pasturage for stock. There are four church organizations in the county: Presbyterian, Methodist, Catholic and Christian. The Presbyterians, being the first to organize, have already a

fine church building costing $3,000. The Methodists are erecting their place of worship. The total acreage of land available for agriculture is at least 600,000; available for grazing, 75,000; unoccupied government land, available for agriculture, 300,000; unsold State lands available for agriculture, 16,000 acres. Sand, lime and stone are found, suitable for building purposes. The Union Pacific and the Burlington and Missouri railroads enter the county and afford facilities for transportation. Here diseases are benefitted and malaria and kindred troubles are unknown. The days are mostly sunshine, the rainfall occurring from 4 p. m. to midnight. The county averages 350 sunny days in the year, and even the winter months give twenty-five pleasant days out of every thirty. Millet, oats, corn, potatoes, sugar cane, broom corn and garden products are the staples. Live stock raising is also profitable, the number of head on the grazing ground being estimated at 10,000; horses, 2,000; sheep, 16,000; hogs, 4,000. All the products find a ready market in Denver and in the Kansas towns, and the prices are invariably good.

## WELD.

THUS far in the progress of agricultural development, Weld is the banner wheat and potato county of the State. It is also famous because of its prominent association with the history of western settlement. The Platte, the Cache la Poudre and their numerous tributary streams flowing through the western portion of the county forms a large area of fertile valley land, possessing many beauties of physicial feature, with the richest of soils and a most agreeable climate, for every season the year round. Situated in the midst of these charming valleys, is the queenly little city of Greeley, the county seat of Weld. It was under the fostering care of the renowned Horace Greeley that the Greeley colony in 1870 made a settlement here and laid out the town site of Greeley. It was this identical spot which Horace Greeley held in his mind's eye when he wrote the familiar but famous admonition of "Go West, young man, and grow up with the country." Weld county formerly embraced all the territory now comprising seven counties in the northeast corner of the State. It is bounded on the north by Wyoming Territory, on the west by Boulder and Larimer counties, on the south by Arapahoe, and on the east by Morgan and Logan counties. It was one of the original Territorial counties. It is the oldest and richest agricultural county in the State, and is famous, especially for its abundant productiveness in wheat, potatoes and garden vegetables. It takes its name from Lonis Landgard Weld, the first Territorial Secretary, and was organized in 1861. The county covers an area of 4,104 square miles, and has a population of about 11,000. The entire county is generally level, with no forests, only the several streams being fringed with trees, with here and there well shaded lanes and lawns about the farms. The streams are the South Platte and Cache la Poudre rivers, and the St. Vrain, Boulder, Lone Tree, Box Elder, Big

Thompson and Little Thompson creeks. The soil is a rich, sandy clay loam, well watered by a thorough system of irrigating canals, and yields all manner of farm products. The principal towns are: Greeley, with a population of 2,500; Platteville, 500; Evans, 250; Windsor, 200; Eaton, 100; Lupton, 50; Erie, 900. Chief occupation of people, agriculture and coal mining. The first assessed valuation of the county was $240,000, the last, 1888, was $9,800,000. The tax rate is fourteen and six-tenths mills. With a surplus of $25,000, there is no county debt. The county has 100 public public schools, including the Greeley Business College and the State Normal School. There are eight weekly newspapers in the county; twenty-one church denominations, twenty church buildings, and thirty Sunday schools. Total acres of land available for agriculture, 2,000,000; total acres available for grazing only, 626,560; total acres of land now under ditch, 437,760. There is a great abundance of coal in the county, the coal mining industry giving employment to about 2,000 people. The first discoveries were made in 1865, and there are now about twelve mines in operation. Total output of the past year, about 150,000 tons. The largest veins are located about Erie, in the southwest corner of the county. It is estimated that there is sufficient coal in the county to supply Colorado for one hundred years. There are about forty main irrigating canals in the county, having an aggregate length of 375 miles. The railroad lines running through the county are the Burlington and Missouri, two lines, Greeley, State Line and Pacific, Colorado Central, the Denver Pacific, the Denver, Utah and Pacific, and the Julesburg Short Line of the Union Pacific. There are no health resorts, but the maximum death rate is about two per cent. Among the resources of the county are large bodies of building stone which have not been extensively quarried. Brick making, pickling, canning and a factory for a vacuum pump for irrigation, constitute the principal manufactories at Greeley. The estimated total acres in grain this year is 40,000. Probable average yield per acre: Wheat, 25 bushels; oats, 30 bushels; rye, 25 bushels; barley, 30 bushels; corn, 20 bushels. Estimated yield for present year: Wheat, 350,000 bushels; oats, 150,000 bushels; rye, 70,000 bushels; corn, 100,000 bushels; potatoes, 800,000 bushels. Total acres in fruit, 800; Number of bearing fruit trees: Apples, 20,000; apricots, 100; pears, 50; plums, 8,000; cherries, 500. Estimated yield this year of raspberries, 18,000 quarts; grapes, 1,000 boxes; currants, 800 bushels; strawberries, 10,000 quarts. Estimated product of butter for market, 80,000 pounds. Number of hives of bees, 1,100; pounds of honey produced, 40,000. Products marketed principally in Denver and mountain towns. Average cost of water per acre, $1.42. Estimated number of cattle in the county, other than domestic; 44,591; horses, 16,758; sheep grown for wool, 76,936; estimated number of hogs, 1,434. Plenty of good agricultural lands, cheap homes, good schools, good churches, good climate, and numerous undeveloped industries are the chief inducements for settlement in Weld county.

## YUMA.

YUMA is one of the new and progressive agricultural counties in the northeastern portion of the State, in the rain belt area, where all kinds of farm produce are raised abundantly without irrigation. It is, however, provided in part with irrigation from the Republican river. The county was organized in the present year (1889). The population is 3,000, composed mostly of immigrant farmers from Iowa, Kansas and Nebraska, and a majority of them are well-to-do and prosperous. It has an area of 1,728 square miles; formerly it was the eastern extremity of Washington county. In its general description it is a slightly undulating prairie with broad stretches of level plains. Yuma county is bounded on the north by Phillips county, on the east by Nebraska and on the south by Arapahoe county. The Republican river and Chief creek are its only streams, and it is crossed from east to west by the Burlington and Missouri railroad. The town of Yuma is the temporary county seat, having a population of 800. Wray has a population of 400, and is situated ten miles from the eastern line. Robb, Eckley and Laird are farm villages of about fifty inhabitants each. The soil of the county is a rich dark sandy loam, with a black joint clay subsoil. It is strongly retentive of moisture, and thus it is productive of vegetation in dry seasons. The assessed valuation of the county for 1889 is $996,784, and the estimated value of real estate held in possession is $3,696,480. The total indebtedness of the county is $2,000. There are twenty-eight public schools in the county, with an estimated school census of 800. The Catholics, Methodists and Presbyterians have churches in the county, with three Sunday schools, and a church membership of about 250. Total acres of land available for agriculture, 1,678,420; total acres available for grazing only, 6,780; total acres of land now under ditch, 10,000; unoccupied public lands, 100,000 acres, nearly all available for agriculture; total number of acres of unsold State land available for agriculture 10,000. Among the resources of the county other than farming is a large area of fine sandstone, two miles from Wray. As yet the quarries are undeveloped. The principal inducements for settlement in Yuma county are, a rich soil, an abundance of available government land, and easy access to the markets for all manner of produce. The total acres planted in grain by estimate, 20,000. The greater part of this land comprises late settlements. Probable average yield per acre: Wheat 20 bushels; oats, 50; rye, 25; barley, 30; corn, 40. Prices: Wheat, per bushel, $1.00; oats, 35 cents; rye, 35 cents; barley, 45 cents; corn, 25 cents. Estimated number of cattle in county, other than domestic, 3,330; horses, 234; hogs, 965. Estimated dairy product of county for current year; butter, 10,000 pounds; cheese, 1,000. Value of garden products $3,000. The surplus of these and other farm products finds a ready market in Denver, Yuma and Akron. The extensive development of Yuma county, when its brief existence as a center of population is taken into consideration, gives promise of a great future for its leading industries, while its situation and natural advantages, render it an eligible site for the settlement of the great host of immigrating people who are moving West in search of homes and occupations.

## COUNTY SUPERINTENDENTS OF IMMIGRATION.

UNDER the law creating the Bureau of Immigration and Statistics, the following named assessors of the several counties are designated as Deputy Superintendents of Immigration. In the event that any special information is desired as to a particular county, these officers will cheerfully answer inquiries.

| COUNTY. | NAME. | POST-OFFICE. |
|---|---|---|
| Arapahoe | Isaac Brinker | Denver |
| Archuleta | Gordon M. Grimes | Pagosa Springs |
| Baca | S. W. McClure | Springfield |
| Bent | Frank Kreybill | Las Animas |
| Boulder | J. H. O'Brien | Boulder |
| Chaffee | Joseph Newett | Buena Vista |
| Cheyenne | S. C. Stephens | Cheyenne Wells |
| Clear Creek | L. T. Reynolds | Georgetown |
| Conejos | José Chavez | Conejos |
| Costilla | J. M. Barela | San Luis |
| Custer | James Baldwin | West Cliff |
| Delta | H. E. Perkins | Delta |
| Dolores | W. G. Barnett | Rico |
| Douglas | F. D. Ball | Castle Rock |
| Eagle | W. W. Livingston | Red Cliff |
| Elbert | A. K. LaDue | Kiowa |
| El Paso | E. G Perkins | Colorado Springs |
| Fremont | H. C. Webster | Cañon City |
| Garfield | J. S. Fritz | Glenwood Springs |
| Gilpin | J. B McNair | Central City |
| Grand | W. C. Call | Hot Sulphur Springs |
| Gunnison | John Gordon | Gunnison |
| Hinsdale | F. A. Ralph | Lake City |
| Huerfano | A. J. Martinez | Walsenburg |
| Jefferson | F. D. Hines | Golden |
| Kiowa | W. S. Wintersmute | Sheridan Lake |
| Kit Carson | D. A. Vanderpool | Burlington |
| Lake | George S. Curtis | Leadville |
| La Plata | W. N. Bagby | Durango |
| Larimer | A. LaFevre | Fort Collins |
| Las Animas | D. Wilkins | Trinidad |
| Lincoln | Arthur Batson | Hugo |
| Logan | H. T. Sutherland | Sterling |
| Mesa | Charles Burg | Grand Junction |
| Montezuma | T. W. Wattles | Cortez |
| Montrose | James Collier | Montrose |
| Morgan | M. L. Stevens | Fort Morgan |
| Otero | Chas. N. Allen | La Junta |
| Ouray | H. S. Holladay | Ouray |
| Park | R. B. Newitt | Fairplay |
| Phillips | C. M. Pickett | Holyoke |
| Pitkin | Philip Carbary | Aspen |
| Prowers | I. L. Maxwell | Lamar |
| Pueblo | D. L. Smith | Pueblo |
| Rio Blanco | O. P. Y. Burch | Meeker |
| Rio Grande | Charles Olson | Del Norte |
| Routt | J. H. Templeton | Hahn's Peak |
| Saguache | Hugh Harrison | Saguache |
| San Juan | E. S. Walker | Silverton |
| San Miguel | S. E. Osborne | Telluride |
| Sedgwick | Lloyd Adams | Julesburg |
| Summit | A. E. Chase | Breckenridge |
| Washington | P. W. Clifford | Akron |
| Weld | A. J. Wilson | Greeley |
| Yuma | David Sisson | Yuma |

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